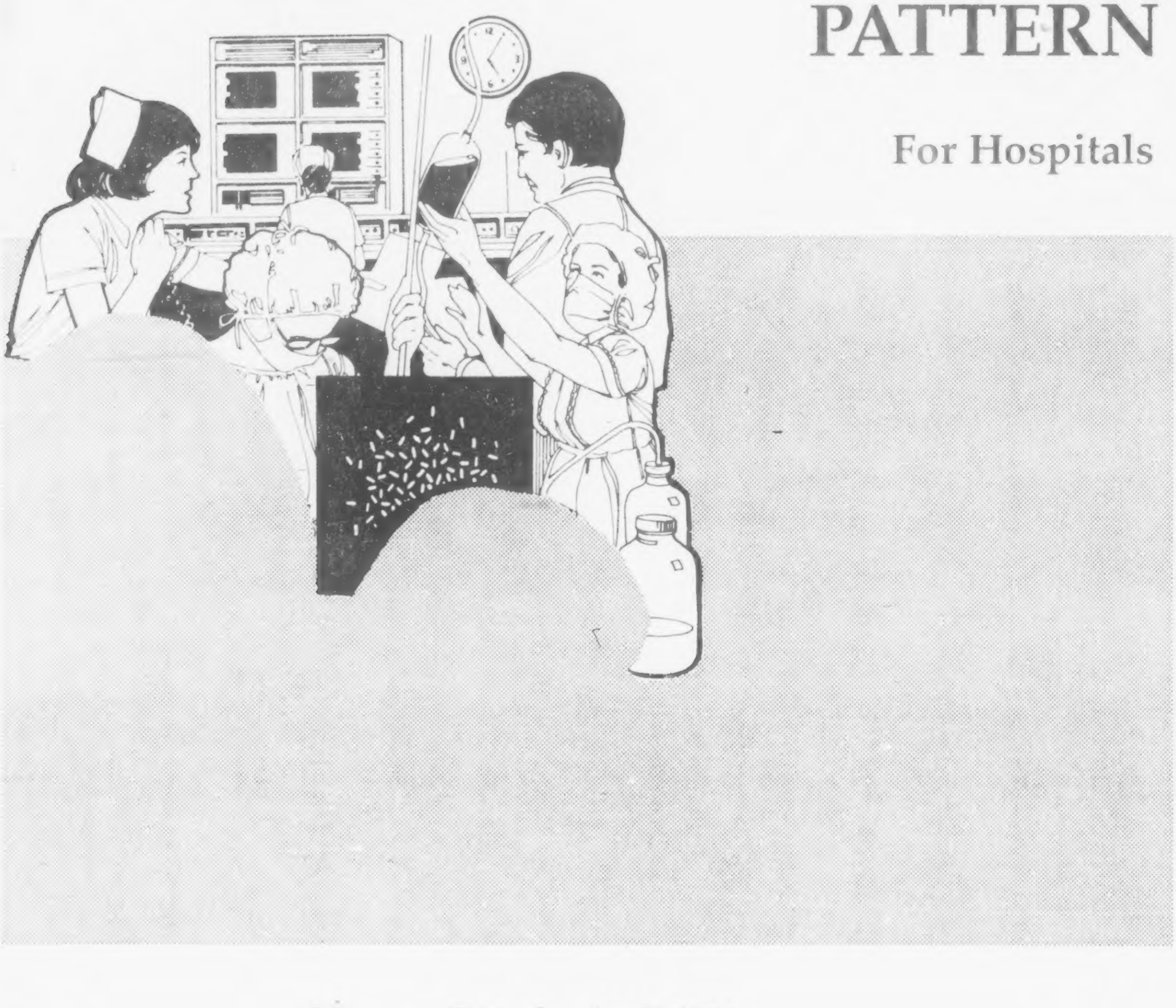
MAINE DEPARTMENT OF
LABOR
BUREAU OF EMPLOYMENT SECURITY
Division of Economic Analysis and Research

Publication Series No. OES - 31

MAINE OCCUPATIONAL STAFFING PATTERN

For Hospitals



Data for April 1986

Labor Market Information Services

John R. McKernan, Jr.
Governor

John Fitzsimmons
Commissioner

Mary Lou Dyer
Executive Director

DEPARTMENT OF LABOR
BUREAU OF EMPLOYMENT SECURITY

MAINE OCCUPATIONAL STAFFING PATTERN

FOR
HOSPITALS

April 1986

This labor market information is developed through a cooperative program with the U.S. Bureau of Labor Statistics

BUREAU OF EMPLOYMENT SECURITY
DIVISION OF ECONOMIC ANALYSIS AND RESEARCH
Raynold A. Fongemie, Director

A Publication Series Developed by the Occupational Outlook and Job Information Section
Ronald R. Leonard, Chief

ISSUED NOVEMBER 1987

AUGUSTA, MAINE

P.O. Box 309, Augusta, Maine 04330 — *Offices Located at* 20 Union Street

PREFACE

We wish to express our thanks to all the hospitals which supplied the necessary occupational employment data on which the estimates presented herein are based. This publication would not have been possible without their cooperation.

We also wish to extend our thanks to the U.S. Department of Labor, both in Washington, D.C. and the regional level in Boston, Massachusetts, for their assistance in this federal-state cooperative effort.

For further information regarding this report please write to us or call 207-289-2271.

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ECONOMIC ANALYSIS AND RESEARCH

November 1987
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INTRODUCTION

This publication is one of a continuing number of reports covering occupational employment for selected industries in Maine. The information in these reports relates to part of a comprehensive "labor market and occupational supply and demand information system" which is mandated by the Job Training Partnership Act of 1982. This federal legislation, coupled with the rapidly expanding public awareness of the need for more vocational training, has resulted in an unparalleled demand for current employment data and projections of future employment requirements by occupation.

The Occupational Employment Statistics (OES) Program is mandated as the system which supplies the occupational data leading to an "Occupational Supply and Demand Information System." This program is a federal-state endeavor involving many state employment security agencies throughout the nation, in conjunction with the U.S. Bureau of Labor Statistics. This OES program consists of three distinct, yet integral components: survey operations, industry-occupation matrices, and projections.

The first part of the OES program consists primarily of collecting occupational employment data by industry through a survey questionnaire mailed to a sample of establishments throughout the State. The sample data received is expanded, using a system of weights and benchmark factors, to produce statewide staffing patterns for the industry. These staffing patterns can then be applied to current or projected estimates of industrial employment to produce estimates of employment by occupation for the State or substate area.

This publication, a direct result of the survey phase of the OES program, contains the staffing pattern for hospitals. The actual employment data was collected for the week of the 12th of April 1986.

Other booklets have already been published covering nearly all wage and salary workers in Maine. Approximately one-third of the State's industries will be surveyed each year, so that the entire economy will be covered every three years. Using this cycle, employers are asked to provide occupational data only once every three years. This ensures that no part of the data is over three years old, and that significant changes in the staffing patterns of industries can be identified early, as the trend develops.

The information obtained from these surveys is used in the second phase of the OES program, constructing industry-occupation matrices covering all sectors of our economy. These matrices, in turn, provide the data base used to project occupational requirements and is one of the basic ingredients of the "Comprehensive Manpower Information System."

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Hospitals

Private, state, and municipal hospitals are all included in this survey. Excluded are hospitals run by the Federal Government such as the U.S. Veterans Administration Hospital at Togus.

There were 20,900 workers employed in these hospitals in April 1986. This actually denotes a small decline in employment of 2 percent since the previous survey in April of 1983. Although there was employment reported in 137 occupations, just over one-half of the total employment, 52 percent, was concentrated in just nine occupations. They were as follows:

Occupational Title	Employment	Percent of Total Employment
Registered Nurses	5,170	24.74%
Licensed Practical Nurses	1,680	8.04
Nursing Aides, Orderlies, and Attendants	1,090	5.22
General Office Clerks	580	2.78
Maids and Housekeeping Cleaners	540	2.58
Psychiatric Aides	540	2.58
Medical and Clinical Laboratory Technologists	470	2.25
Janitors and Cleaners, except Maids and Housekeeping Cleaners	440	2.11
Physicians and Surgeons	420	2.01
TOTAL	10,930	52.31%

Each of the following twenty occupations were reported by at least three quarters of all responding hospitals:

Occupational Title	Percent of usable units reporting the occupation
Registered Nurses	100%
Licensed Practical Nurses	96
Cooks, Institution or Cafeteria	95
General Managers and Top Executives	90
Medicine and Health Services Managers	90
Nursing Aides, Orderlies, and Attendants	90
Physical Therapists	88
Financial Managers	88
Medical and Clinical Laboratory Technicians	85
Social Workers, Medical and Psychiatric	85
Switchboard Operators	83
General Office Clerks	80
Personnel, Training, and Labor Relations Managers	80
Pharmacy Assistants	80
Medical and Clinical Laboratory Technologists	78
Medical Records Technicians and Technologists	78
Pharmacists	78
Billing, Cost, and Rate Clerks	75
Food Service and Lodging Managers	75
Maids and Housekeeping Cleaners	75

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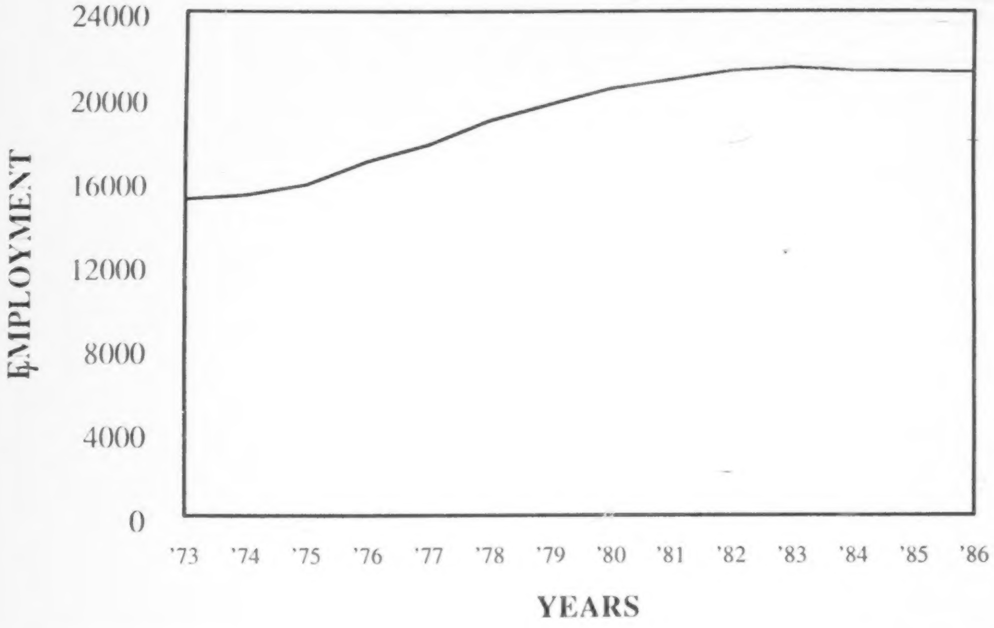
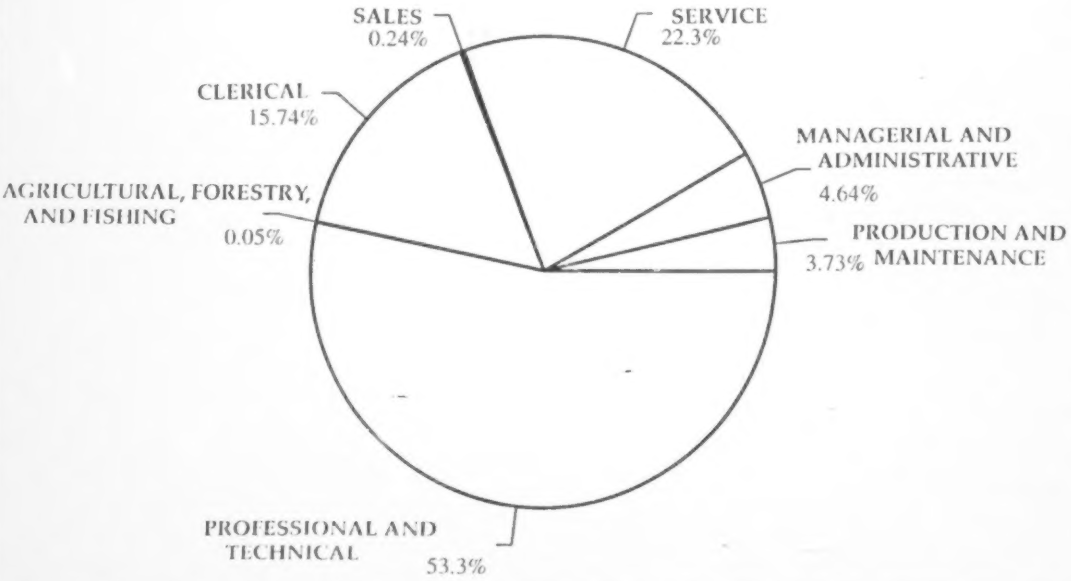
ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN HOSPITALS



PERCENTAGE OF EMPLOYMENT BY MAJOR OCCUPATIONAL CATEGORIES IN APRIL 1986



HOSPITALS
April 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	20,900	100.00	na	na
Managerial and Administrative Occupations	970	4.64	na	na
Financial Managers	60	0.29	4	88
Personnel, Training, and Labor Relations Managers	50	0.24	3	80
Purchasing Managers	30	0.14	5	65
Marketing, Advertising, and Public Relations Managers	30	0.14	8	48
Administrative Services Managers	50	0.24	24	30
Engineering, Mathematical, and Natural Sciences Managers	30	0.14	8	35
Medicine and Health Services Managers	310	1.48	8	90
Food Service and Lodging Managers	50	0.24	4	75
General Managers and Top Executives	130	0.62	8	90
All Other Managers and Administrators	230	1.10	na	na
Professional, Paraprofessional, and Technical Occupations	11,140	53.30	na	na
Accountants and Auditors	30	0.14	7	50
Budget Analysts	20	0.10	10	28
All Other Financial Specialists	20	0.10	7	20
Purchasing Agents, except Wholesale, Retail, and Farm Products	30	0.14	7	40
Personnel, Training, and Labor Relations Specialists	30	0.14	5	43
Compliance Officers and Enforcement Inspectors, except Construction	20	0.10	14	20
All Other Management Support Workers	30	0.14	na	na
Engineers	20	0.10	na	na
Engineering and Related Technicians and Technologists	20	0.10	na	na
Biological Scientists	10	0.05	26	10
All Other Life Scientists	20	0.10	na	na
Systems Analysts, Electronic Data Processing	10	0.05	16	10
Computer Programmers	20	0.10	8	30
Computer Programmer Aides	30	0.14	11	33
Psychologists	40	0.19	15	25
Social Workers, Medical and Psychiatric	220	1.05	4	85
Social Workers, except Medical and Psychiatric	20	0.10	12	28
Social Service Technicians	50	0.24	31	20
Clergy	20	0.10	11	25
Nursing Instructors	70	0.33	7	33

Hospitals (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Teachers and Instructors, Vocational Education and Training	30	0.14	12	13
All Other Teachers and Instructors	30	0.14	na	na
Librarians, Professional	30	0.14	6	38
Technical Assistants, Library	10	0.05	11	13
Physicians and Surgeons	420	2.01	9	53
All Other Health Diagnosing and Treating Practitioners	10	0.05	na	na
Respiratory Therapists	220	1.05	5	55
Occupational Therapists	60	0.29	5	43
Physical Therapists	170	0.81	3	88
Speech Pathologists and Audiologists	20	0.10	14	15
Recreational Therapists	10	0.05	23	8
Registered Nurses	5,170	24.74	2	100
Licensed Practical Nurses	1,680	8.04	4	96
Emergency Medical Technicians	50	0.24	23	10
Physician's Assistants	70	0.33	9	45
Pharmacists	120	0.57	3	78
Dietitians and Nutritionists	60	0.29	4	65
Dietetic Technicians	120	0.57	6	60
Medical and Clinical Laboratory Technologists	470	2.25	4	78
Medical and Clinical Laboratory Technicians	350	1.67	6	85
Medical Records Technicians and Technologists	190	0.91	5	78
Nuclear Medicine Technologists	60	0.29	8	50
Radiologic Technologists	200	0.96	8	53
Radiologic Technicians	220	1.05	7	63
Electroencephalograph Technicians and Technologists	20	0.10	10	25
Electrocardiograph Technicians and Technologists	70	0.33	5	50
Surgical Technicians	180	0.86	5	68
All Other Health Professionals, Paraprofessionals, and Technicians	180	0.86	na	na
Public Relations Specialists and Publicity Writers	20	0.10	11	23
Photographers	10	0.05	10	13
All Other Professional, Paraprofessional, and Technical Workers	160	0.77	21	13
Sales and Related Occupations	50	0.24	na	na
Cashiers	50	0.24	11	40
Clerical and Administrative Support Occupations	3,290	15.74	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	120	0.57	8	63
Adjustment Clerks	20	0.10	20	13
Medical Secretaries	150	0.72	13	63
All Other Secretaries	390	1.87	7	58

Hospitals (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Stenographers	110	0.53	9	23
Receptionists and Information Clerks	140	0.67	5	58
Typists, except Word Processing Equipment	240	1.15	8	65
Typists, Word Processing Equipment	40	0.19	13	25
Personnel Clerks, except Payroll and Timekeeping	30	0.14	10	38
File Clerks	90	0.43	7	30
Order Clerks, Materials, Merchandise, and Service	20	0.10	12	28
Procurement Clerks	20	0.10	10	28
Statistical Clerks	70	0.33	12	33
Interviewing Clerks, except Personnel and Social Welfare	260	1.24	6	55
Bookkeeping, Accounting, and Auditing Clerks	90	0.43	6	65
Payroll and Timekeeping Clerks	30	0.14	5	58
Billing, Cost, and Rate Clerks	260	1.24	4	75
General Office Clerks	580	2.78	5	80
Billing, Posting, and Calculating Machine Operators	10	0.05	22	13
Computer Operators, except Peripheral Equipment	50	0.24	11	33
Data Entry Keyers, except Composing	70	0.33	8	48
All Other Office Machine Operators	10	0.05	na	na
Switchboard Operators	240	1.15	4	83
Stock Clerks, Stockroom, Warehouse, or Storage Yard	100	0.48	8	65
Traffic, Shipping, and Receiving Clerks	30	0.14	11	28
All Other Material Recording, Scheduling, and Distributing Workers	10	0.05	na	na
All Other Clerical and Administrative Support Workers	110	0.53	na	na
Service Occupations	4,660	22.30	na	na
Housekeepers	160	0.77	14	73
All Other Service Supervisors and Manager/Supervisors	50	0.24	8	40
Guards and Watch Guards	70	0.33	13	30
Food Servers, Outside	310	1.48	8	45
Dining Room and Cafeteria Attendants, and Bartender Helpers	80	0.38	12	18
Counter Attendants, Lunchroom, Coffee Shop, or Cafeteria	70	0.33	9	30
Bakers, Bread and Pastry	10	0.05	12	23
Cooks, Institution or Cafeteria	190	0.91	4	95
Food Preparation Workers	330	1.58	5	70
All Other Food Service Workers	90	0.43	na	na
Medical Assistants	60	0.29	16	25
Nursing Aides, Orderlies, and Attendants	1,090	5.22	4	90
Psychiatric Aides	540	2.58	24	15

Hospitals (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Physical and Corrective Therapy Assistants and Aides	60	0.29	6	50
Occupational Therapy Assistants and Aides	20	0.10	11	20
Ambulance Drivers and Attendants, except Emergency Medical Technicians	20	0.10	35	8
Pharmacy Assistants	180	0.86	3	80
All Other Health Service Workers	210	1.00	na	na
Maids and Housekeeping Cleaners	540	2.58	8	75
Janitors and Cleaners, except Maids and Housekeeping Cleaners	440	2.11	13	55
All Other Cleaning and Building Service Workers, except Private Households	130	0.62	na	na
All Other Service Workers	10	0.05	na	na
Agricultural, Forestry, Fishing, and Related Occupations	10	0.05	na	na
Gardeners and Groundskeepers, except Farm	10	0.05	10	15
Production, Construction, Operating, Maintenance, and Material Handling Occupations	780	3.73	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	30	0.14	11	35
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance, and Related	30	0.14	15	23
Machinery Maintenance Mechanics	10	0.05	27	8
Maintenance Repairers, General Utility	140	0.67	6	73
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	20	0.10	16	20
Electromedical and Biomedical Equipment Repairers	10	0.05	16	13
Menders, Garments, Linens, and Related	10	0.05	16	15
All Other Mechanics, Installers, and Repairers	40	0.19	na	na
Carpenters	30	0.14	9	23
Electricians	20	0.10	3	28
Painters and Paperhangers, Construction and Maintenance	30	0.14	6	33
Plumbers, Pipefitters, and Steamfitters	10	0.05	9	23
All Other Construction and Extractive Workers, except Helpers	10	0.05	na	na
Precision Production Occupations	10	0.05	17	10
Laundry and Drycleaning Machine Operators and Tenders, except Pressing	110	0.53	10	48
Pressing Machine Operators and Tenders, Textile, Garment, and Related Materials	20	0.10	20	8
Boiler Operators and Tenders, Low Pressure	40	0.19	11	28

Hospitals (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
All Other Machine Setters and Set-up Operators.	10	0.05	15	10
All Other Machine Operators and Tenders........	40	0.19	15	10
Hand Working Occupations, including Assemblers and Fabricators............................	40	0.19	23	8
Stationary Engineers..........................	20	0.10	25	8
Truck Drivers, Light, including Delivery and Route Workers..........................	10	0.05	18	10
All Other Motor Vehicle Operators.............	10	0.05	19	13
All Other Transportation and Material Moving Equipment Operators........................	30	0.14	na	na
Helpers, Laborers, and Material Movers, Hand, excluding Agriculture and Forestry Laborers..	50	0.24	21	10

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NOTES ABOUT THE TABLE

Estimated Employment

If only one or two establishments reported a particular occupation, the occupational estimate is not shown separately, but added to the appropriate "All Other" or residual category. The "TOTAL ALL OCCUPATIONS" estimate for each industry is based on a benchmark figure derived from the second quarter 1986 ES-202 report of Employment, Wages, and Contributions covered by the Maine Employment Security Law.

Percent of Total Employment

The detail in the column entitled "% of Total Empl." may not add to totals due to rounding.

Relative Error

The relative error was computed only for specific occupations and not for residual categories nor for occupational groupings. If the relative error of an occupation exceeded 50 percent, the employment for that occupation was added to the residual category that was relevant to it. The relative error relates to the actual estimate before rounding. For an example of how the relative error is applied, see Accuracy of Occupational Employment Data in the METHODOLOGY.

Percent of Establishments Reporting the Occupation

The percent of establishments reporting each occupation could not be readily calculated for groups of occupations, but only for specific occupations.

Abbreviations

na - not applicable
Empl. - Employment

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METHODOLOGY

The Sample

The April 1985 report of Employment, Wages, and Contributions covered by the Maine Employment Security Law was used as the sampling frame for the Occupational Employment Statistics (OES) Program's survey of hospitals. All municipal, state, and private hospitals employing more than three workers were included in this survey. This amounted to 54 units employing a total of 21,163 employees. Hospitals run by the Federal Government were excluded from this report as they were included in the survey of Federal Government.

The Survey

The survey consisted of an initial mailing and two follow-up mailings to nonrespondents. In addition, phone calls and personal visits were made to those employers whose responses were critical for valid estimates. The final sample consisted of 52 units employing 20,951 workers. Usable responses were received from 40 units, or 76.9 percent of the total number of hospitals included in this survey. These responses represented 84.8 percent of the total employment in hospitals, or 17,769 workers.

The Screening, Editing, and Estimating Procedures

Each completed questionnaire returned was edited and screened both manually and mechanically for consistency and accuracy. The resulting "clean data file" served as the basis for calculating estimates. The "clean" employer questionnaires were separated into seven size groups, the size being determined by the number of persons employed by each. The data was then tied into the universe employment for the report month of April 1986. These universe, or benchmark, figures came from the second quarter 1986 ES-202 report of Employment, Wages, and Contributions covered by the Maine Employment Security Law. The total survey data by size class was divided into the universe data for corresponding size classes. This produced benchmark factors which were applied to the occupational data, thus accounting for any nonresponding units, and any units not included in the sample. The occupational estimates were summed across size classes to the industry total and rounded to the nearest ten. The percent of occupational distribution was then calculated.

Accuracy of Occupational Employment Data

There are two types of errors which affect the accuracy of the estimates published here--sampling and nonsampling errors. Sampling error is a specific arithmetic measure of the precision of an estimate. It is the difference between the estimate computed from the sample data and the result that would be obtained if the same methods were used to collect identical information from the entire population or universe with no nonresponse. The relative error entries listed in this report are the sampling errors of each occupation expressed as a percent of that occupational estimate. In other words, relative error means that the chances are two out of three (a 68 percent confidence level) that the results of a comparable full-scale data collection (the universe) with 100 percent response, using the same survey approach would not differ by more than the percent error shown. The chances are 19 out of 20 (a 95 percent confidence level) that the results would not differ by more than twice the percent error shown. For example, it is estimated in this report that there are 220 respiratory therapists employed in hospitals with a 5 percent relative error. Thus, at a 68 percent confidence level, it is assured that the results of a full-scale count of respiratory therapists in this industry would not differ from this estimate by more than 11 workers (220 x .05). At a 95 percent confidence level, the universe count would not differ from the estimate by more than 10 percent of 220, or 22 workers.

The nonsampling error results from external factors in a survey rather than from the fact that a sampling technique was used. Examples of these errors are: response errors, processing errors, computational errors, etc. The possibility of these errors was recognized from the start of the survey and every effort was made to avoid them.

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MAINE DEPARTMENT OF
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BUREAU OF EMPLOYMENT SECURITY
Division of Economic Analysis and Research

Publication Series No. OES-32

MAINE OCCUPATIONAL STAFFING PATTERNS

For

MANUFACTURING INDUSTRIES

Data for Second Quarter 1986

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DEPARTMENT OF LABOR
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MAINE OCCUPATIONAL STAFFING PATTERNS
FOR
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Second Quarter 1986

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Raynold A. Fongemie, Division Director
ECONOMIC ANALYSIS AND RESEARCH

January 1988
Augusta, Maine 04330

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INTRODUCTION

This publication is one of a continuing number of reports covering occupational employment for selected industries in Maine. The information in these reports relates to part of a comprehensive "labor market and occupational supply and demand information system" which is mandated by the Job Training Partnership Act of 1982. This federal legislation, coupled with the rapidly expanding public awareness of the need for more vocational training, has resulted in an unparalleled demand for current employment data and projections of future employment requirements by occupation.

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MANUFACTURING INDUSTRIES
UNIVERSE, SAMPLE, AND RESPONSE RATE
BY SIC 1/

Standard Industrial Classification (SIC)	Sampling Universe 2/		Sample				Usable Response		Response Rate 3/	
			Units		Employment					
	Units 4/	Employment	Number	% of Universe	Number	% of Universe	Units	Employment	Units	Employment
20	139	8,273	121	87.1	8,110	98.0	98	6,936	81.0	85.5
22	57	6,969	57	100.0	6,950	99.7	42	5,963	73.7	85.8
23	38	4,297	35	92.1	4,242	98.7	32	4,048	91.4	95.4
24	395	12,094	242	61.3	10,338	85.5	188	7,567	77.7	73.2
25	28	1,027	27	96.4	1,016	98.9	22	936	81.5	92.1
26	42	18,339	41	97.6	18,094	98.7	27	11,526	65.9	63.7
27	160	4,948	114	71.3	4,459	90.1	97	3,394	85.1	76.1
28	25	902	25	100.0	898	99.6	21	656	84.0	73.1
29 6/	8	295	8	100.0	295	100.0	8	295	100.0	100.0
30	36	3,861	32	88.9	3,939	5/	27	3,590	84.4	91.1
31	73	14,703	66	90.4	14,249	96.9	41	10,207	62.1	71.6
32	68	1,295	66	97.1	1,272	98.2	54	1,096	81.8	86.2
33	11	800	10	90.9	789	98.6	7	688	70.0	87.2
34	82	3,275	79	96.3	3,161	96.5	69	2,809	87.3	88.9
35	98	4,693	94	95.9	4,604	98.1	80	3,912	85.1	85.0
36	45	9,834	48	5/	9,901	5/	40	7,456	83.3	75.3
37	62	9,322	34	54.8	8,940	95.9	29	7,506	85.3	84.0
38	11	560	13	5/	752	5/	13	752	100.0	100.0
39	26	902	27	5/	919	5/	23	868	85.2	94.5
Total	1,404	106,409	1,139	81.1	102,928	96.7	918	80,205	80.6	77.9

1/ All the data in this table are based on the sampling benchmark data (2nd quarter 1985) rather than the estimating benchmark data (2nd quarter 1986). The industries are defined by the 1972 Standard Industrial Classification (SIC) Manual.

2/ Data obtained from the second quarter 1985 report of Employment, Wages, and Contributions covered by the Maine Employment Security Law.

3/ The response rate is the usable response expressed as a percent of the sample.

4/ This number of units reflects only those units employing four or more employees. Since the OES program does not survey any employer who employs less than four people, these employers are not reflected in the "units" count in this table. However, their employees are included in the "employment" count as shown in this table. Therefore, the situation arises, as with SIC 28, that 100 percent of the units were included in the sample, but only 99.6 percent of the employment. The remaining employment was in units employing less than four workers, and thus not surveyed. Their employment, however, is reflected in the final occupational estimates.

5/ Through the course of the survey, it was determined that a few establishments needed to change their industry discription code. These new codes are not reflected in the "sampling universe" figures, but are reflected in the remainder of this table. This explains why this ratio would calculate to more than 100 percent.

6/ This industry was included in the survey but is not represented in the following tables because it would have violated the confidentiality rule under which the data was collected.

219k

FOOD AND KINDRED PRODUCTS
SIC 20

This major industry group includes establishments manufacturing or processing foods and beverages for human consumption and certain related products, such as manufactured ice, chewing gum, vegetable and animal fats and oils, and prepared feeds for animals and fowls.

Historically, employment in the food service industry has been generally on the decline. During the last half of the 1960s, employment in this industry was over 12,000. During most of the 1970s employment was in the 10,000 to 10,700 range. A dramatic decline started in 1978 and continued through 1984, during which time employment fell by 2,800 workers, or 26 percent, reaching an employment low of 7,900 persons. During the years of 1985 and 1986, employment hovered around 8,100.

In 1986, total wages paid to employees of the food and kindred products industry totaled $121.1 million. This equates to an average annual wage of $15,069 per worker.

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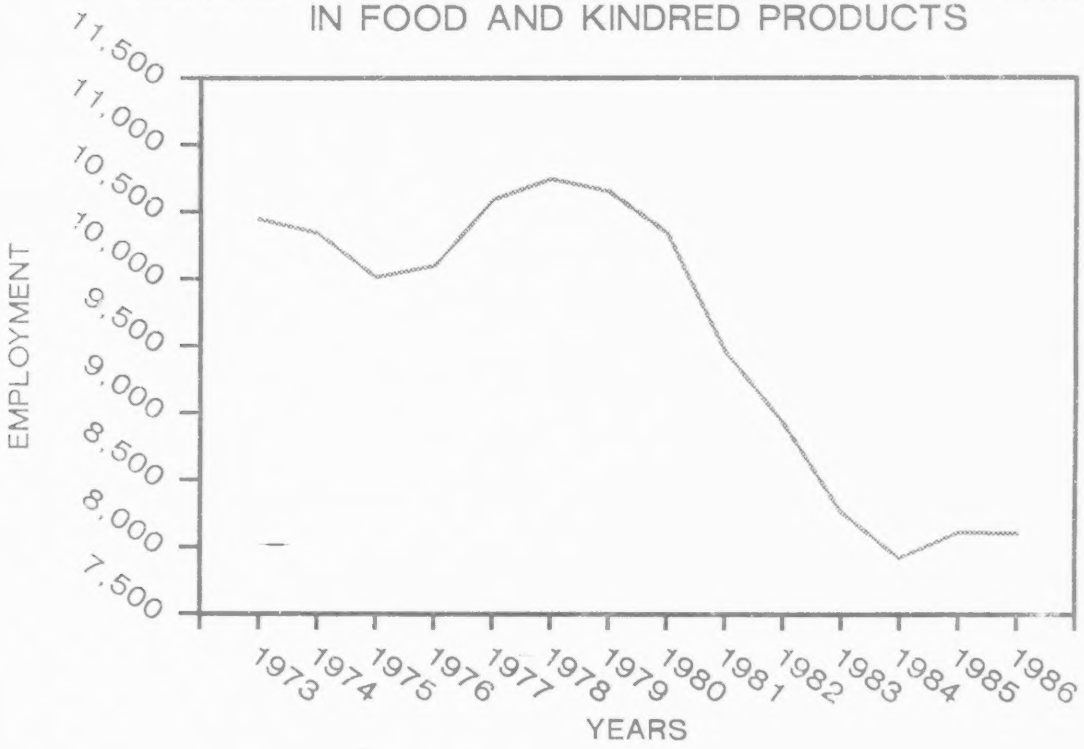
FIGURE 1

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN FOOD AND KINDRED PRODUCTS



Food and Kindred Products
SIC 20
June 1986

Eleven Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Cannery Workers	1,350	17.79
Meat, Poultry, and Fish Cutters and Trimmers, Hand	430	5.67
Packaging and Filling Machine Operators and Tenders	380	5.01
Driver/Sales Workers	360	4.74
Hand Packers and Packagers	360	4.74
Freight, Stock, and Material Movers, Hand	250	3.29
Truck Drivers, Heavy or Tractor Trailer	220	2.90
Bakers, Manufacturing	190	2.50
Maintenance Repairers, General Utility	180	2.37
General Managers and Top Executives	150	1.98
Janitors and Cleaners, except Maids and Housekeeping Cleaners	150	1.98
Total	4,020	52.96

Ten Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	150	65
Bookkeeping, Accounting, and Auditing Clerks	100	44
General Office Clerks	130	38
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	140	35
Truck Drivers, Heavy or Tractor Trailer	220	35
Industrial Production Managers	80	34
Packaging and Filling Machine Operators and Tenders	380	33
Janitors and Cleaners, except Maids and Housekeeping Cleaners	150	32
Maintenance Repairers, General Utility	180	30
Machinery Maintenance Mechanics	120	28

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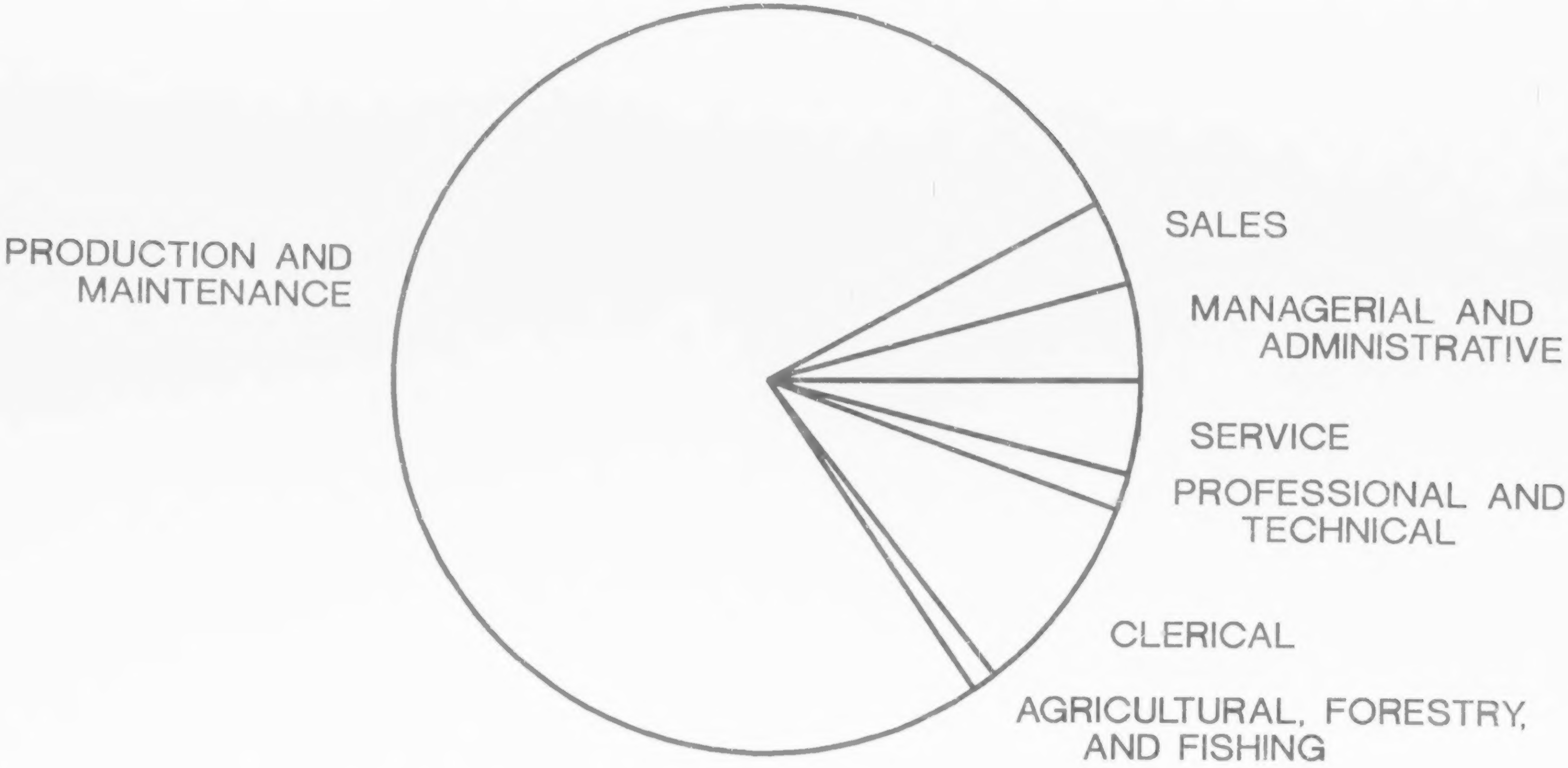
Figure 2

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT
IN FOOD AND KINDRED PRODUCTS



FOOD AND KINDRED PRODUCTS
SIC 20
June 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	7,590	100.00	na	na
Managerial and Administrative Occupations	320	4.22	na	na
Financial Managers	30	0.40	3	21
Personnel, Training, and Labor Relations Managers	10	0.13	6	9
Purchasing Managers	10	0.13	9	8
Marketing, Advertising, and Public Relations Managers	20	0.26	9	12
Industrial Production Managers	80	1.05	7	34
General Managers and Top Executives	150	1.98	5	65
All Other Managers and Administrators	20	0.26	na	na
Professional, Paraprofessional, and Technical Occupations	120	1.58	na	na
Accountants and Auditors	30	0.40	9	19
Purchasing Agents and Buyers, Farm Products	10	0.13	5	4
Purchasing Agents, except Wholesale, Retail, and Farm Products	10	0.13	16	9
Industrial Engineers, except Safety	10	0.13	8	5
Mechanical Engineers	10	0.13	17	4
Chemical Technicians and Technologists, except Health	10	0.13	26	3
Computer Programmers	10	0.13	9	3
Health Practitioners, Technologists, Technicians, and Related Health Occupations	10	0.13	na	4
All Other Professionals, Paraprofessionals, and Technical Occupations	20	0.26	na	na
Sales and Related Occupations	280	3.69	na	na
First Line Supervisors and Manager/Supervisors, Sales and Related Occupations	40	0.53	9	12
Sales Representatives, except Scientific and Related Products and Services, and Retail	100	1.32	9	26
Salespersons, Retail	120	1.58	16	11
Cashiers	20	0.26	37	5
Clerical and Administrative Support Occupations	670	8.83	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	30	0.40	7	19
Secretaries	50	0.66	5	26
Receptionists and Information Clerks	10	0.13	8	7
Personnel Clerks	10	0.13	10	6
Order Clerks, Materials, Merchandise, and Service	10	0.13	6	6
Bookkeeping, Accounting, and Auditing Clerks	100	1.32	7	44
Payroll and Timekeeping Clerks	20	0.26	8	15
Billing, Cost, and Rate Clerks	20	0.26	16	9
General Office Clerks	130	1.71	3	38
Computer Operators	10	0.13	13	6
Data Entry Keyers, except Composing	50	0.66	9	9
Switchboard Operators	10	0.13	7	11
Production, Planning, and Expediting Clerks	10	0.13	6	8
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	60	0.79	24	13
Stock Clerks, Stockroom, Warehouse, or Storage Yard	30	0.40	9	12
Traffic, Shipping, and Receiving Clerks	100	1.32	15	32
All Other Material Recording, Scheduling, and Distributing Workers	10	0.13	na	na
All Other Clerical and Administrative Support Workers	10	0.13	na	na
Service Occupations	310	4.08	na	na
First Line Supervisors and Manager/Supervisors, Service	40	0.53	14	7
Guards and Watch Guards	20	0.26	7	9
Food and Beverage Preparation and Service Occupations	60	0.79	15	6
Janitors and Cleaners, except Maids and Housekeeping Cleaners	150	1.98	2	32
All Other Cleaning and Building Service Workers, except Private Households	20	0.26	na	na
All Other Service Workers	20	0.26	na	na
Agriculture, Forestry, Fishing, and Related Occupations	80	1.05	na	na
Graders and Sorters, Agricultural Products	20	0.26	3	5
All Other Agricultural, Forestry, Fishing and Related Workers	60	0.79	na	na

SIC 20 (continued)

Occupation	Estimated Employ-ment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Production, Construction, Operating, Maintenance, and Material Handling Occupations	5,810	76.55	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	30	0.40	2	14
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	140	1.84	3	35
First Line Supervisors and Manager/Supervisors, Transportation and Material Moving Machine and Vehicle Occupations	50	0.66	11	17
First Line Supervisors and Manager/Supervisors, Helpers, Laborers and Material Movers, Hand	30	0.40	2	9
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance, and Related	10	0.13	na	na
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	90	1.19	6	17
All Other Inspectors, Testers, and Related Occupations	30	0.40	na	na
Machinery Maintenance Mechanics	120	1.58	4	28
Machinery Maintenance Workers	10	0.13	18	6
Maintenance Repairers, General Utility	180	2.37	3	30
Automotive Mechanics	30	0.40	1	3
Bus and Truck Mechanics and Diesel Engine Specialists	40	0.53	11	12
Coin and Vending Machine Servicers and Repairers	10	0.13	5	4
All Other Mechanics, Installers, and Repairers	10	0.13	na	na
Carpenters	10	0.13	na	4
Electricians	30	0.40	4	11
Painters and Paperhangers	10	0.13	2	3
All Other Precious Metal Workers	10	0.13	na	na
Slaughterers and Butchers	20	0.26	45	3
Bakers, Manufacturing	190	2.50	24	9
Food Batchmakers	50	0.66	8	15
All Other Precision Food and Tobacco Workers	10	0.13	na	na
Cooking Machine Operators and Tenders, Food and Tobacco	70	0.92	6	16
Roasting, Baking, and Drying Machine Operators and Tenders, Food and Tobacco	60	0.79	11	7
Boiler Operators and Tenders, Low Pressure	20	0.26	6	9
Cooling and Freezing Equipment Operators and Tenders	30	0.40	na	7
Dairy Processing Equipment Operators, including Setters	80	1.05	5	10
Cutting and Slicing Machine Operators and Tenders	70	0.92	na	7
Separating, Filtering, Clarifying, Precipitating, and Still Machine Operators and Tenders	20	0.26	5	7
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders	40	0.53	16	9
Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders	40	0.53	41	3
Packaging and Filling Machine Operators and Tenders	380	5.01	4	33
All Other Machine Setters and Setup Operators	50	0.66	na	na
All Other Machine Operators and Tenders	110	1.45	na	na
Cannery Workers	1,350	17.79	3	23
Meat, Poultry, and Fish Cutters and Trimmers, Hand	430	5.67	5	16
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	10	0.13	20	4
All Other Hand Workers	30	0.40	na	na
Stationary Engineers	30	0.40	4	6
All Other Plant and Systems Operators	10	0.13	na	na
Truck Drivers, Heavy or Tractor Trailer	220	2.90	5	35
Truck Drivers, Light, including Delivery and Route Workers	60	0.79	18	16
Driver/Sales Workers	360	4.74	11	20
All Other Transportation and Related Workers	10	0.13	na	na
Industrial Truck and Tractor Operators	140	1.84	3	23
Machine Feeders and Offbearers	50	0.66	6	11
Freight, Stock, and Material Movers, Hand	250	3.29	3	22
Hand Packers and Packagers	360	4.74	9	26
Vehicle Washers and Equipment Cleaners	30	0.40	4	7
All Other Helpers, Laborers, and Material Movers, Hand	390	5.14	na	na

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SIC 20 (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Production, Construction, Operating, Maintenance, and Material Handling Occupations	5,810	76.55	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	30	0.40	2	14
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	140	1.84	3	35
First Line Supervisors and Manager/Supervisors, Transportation and Material Moving Machine and Vehicle Occupations	50	0.66	11	17
First Line Supervisors and Manager/Supervisors, Helpers, Laborers and Material Movers, Hand	30	0.40	2	9
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance, and Related	10	0.13	na	na
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	90	1.19	6	17
All Other Inspectors, Testers, and Related Occupations	30	0.40	na	na
Machinery Maintenance Mechanics	120	1.58	4	28
Machinery Maintenance Workers	10	0.13	18	6
Maintenance Repairers, General Utility	180	2.37	3	30
Automotive Mechanics	30	0.40	1	3
Bus and Truck Mechanics and Diesel Engine Specialists	40	0.53	11	12
Coin and Vending Machine Servicers and Repairers	10	0.13	5	4
All Other Mechanics, Installers, and Repairers	10	0.13	na	na
Carpenters	10	0.13	na	4
Electricians	30	0.40	4	11
Painters and Paperhangers	10	0.13	2	3
All Other Precious Metal Workers	10	0.13	na	na
Slaughterers and Butchers	20	0.26	45	3
Bakers, Manufacturing	190	2.50	24	9
Food Batchmakers	50	0.66	8	15
All Other Precision Food and Tobacco Workers	10	0.13	na	na
Cooking Machine Operators and Tenders, Food and Tobacco	70	0.92	6	16
Roasting, Baking, and Drying Machine Operators and Tenders, Food and Tobacco	60	0.79	11	7
Boiler Operators and Tenders, Low Pressure	20	0.26	6	9
Cooling and Freezing Equipment Operators and Tenders	30	0.40	na	7
Dairy Processing Equipment Operators, including Setters	80	1.05	5	10
Cutting and Slicing Machine Operators and Tenders	70	0.92	na	7
Separating, Filtering, Clarifying, Precipitating, and Still Machine Operators and Tenders	20	0.26	5	7
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders	40	0.53	16	9
Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders	40	0.53	41	3
Packaging and Filling Machine Operators and Tenders	380	5.01	4	33
All Other Machine Setters and Setup Operators	50	0.66	na	na
All Other Machine Operators and Tenders	110	1.45	na	na
Cannery Workers	1,350	17.79	3	23
Meat, Poultry, and Fish Cutters and Trimmers, Hand	430	5.67	5	16
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	10	0.13	20	4
All Other Hand Workers	30	0.40	na	na
Stationary Engineers	30	0.40	4	6
All Other Plant and Systems Operators	10	0.13	na	na
Truck Drivers, Heavy or Tractor Trailer	220	2.90	5	35
Truck Drivers, Light, including Delivery and Route Workers	60	0.79	18	16
Driver/Sales Workers	360	4.74	11	20
All Other Transportation and Related Workers	10	0.13	na	na
Industrial Truck and Tractor Operators	140	1.84	3	23
Machine Feeders and Offbearers	50	0.66	6	11
Freight, Stock, and Material Movers, Hand	250	3.29	3	22
Hand Packers and Packagers	360	4.74	9	26
Vehicle Washers and Equipment Cleaners	30	0.40	4	7
All Other Helpers, Laborers, and Material Movers, Hand	390	5.14	na	na

Ibid

TEXTILE MILL PRODUCTS
SIC 22

This major industry group includes establishments engaged in performing any of the following operations: (1) preparation of fiber and subsequent manufacturing of yarn, thread, braids, twine, and cordage; (2) manufacturing broad woven fabric, narrow woven fabric, and knit fabric, and carpets and rugs from yarn; (3) dyeing and finishing fiber, yarn, fabric, and knit apparel; (4) coating, waterproofing, or otherwise treating fabric; (5) the integrated manufacture of knit apparel and other finished articles from yarn; and (6) the manufacture of felt goods, lace goods, nonwoven fabrics, and miscellaneous textiles.

Employment in this industry has seen a sharp decline between 1977 and 1982, losing 2,500 workers, 27 percent of its total employment. Although employment picked up a little between 1982 and 1984, it has turned around again, hovering around a low of about 6,650 workers in 1985 and 1986.

In 1986, total wages paid to employees of the textile mill products industry totaled $112 million. This equates to an average annual wage of $16,782 per worker.

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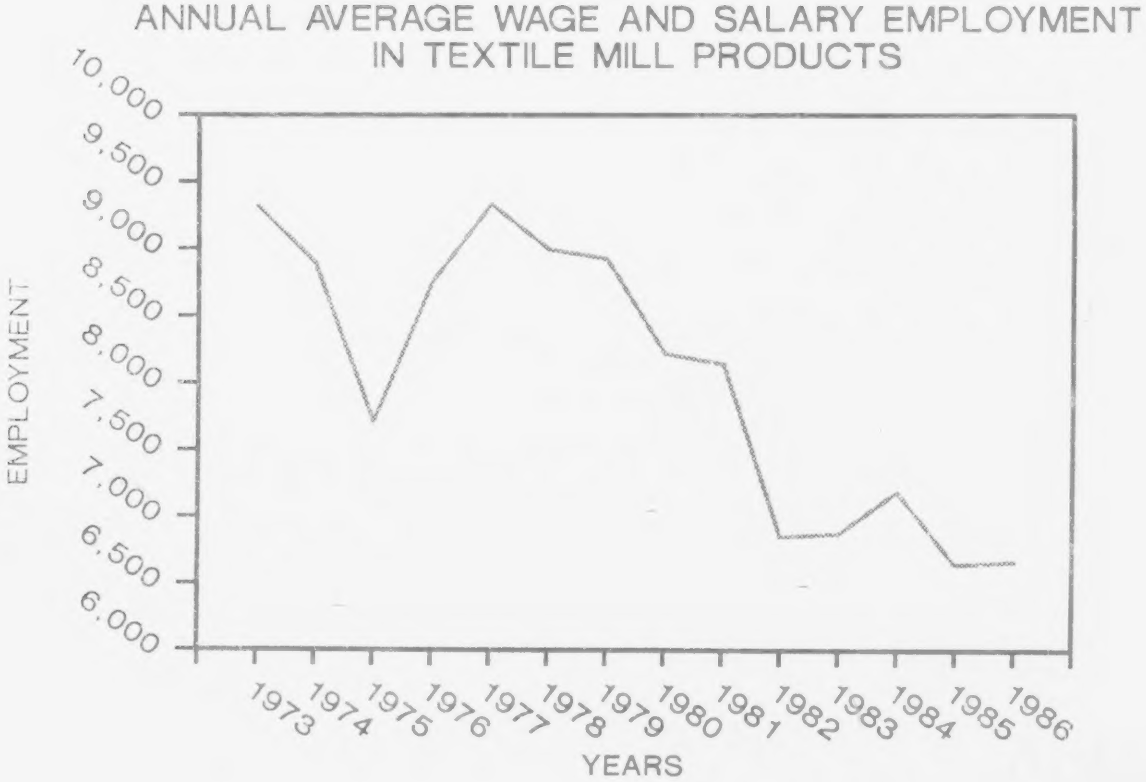
Figure 3



Textile Mill Products
SIC 22
April 1986

Ten Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Textile Machine Operators and Tenders, Winding Twisting, Knitting, Weaving, and Cutting......	1,890	27.88
Machinery Maintenance Mechanics, Textile Machines....................................	330	4.87
First Line Supervisors and Manager/Supervisors, Production and Operating Workers.............	230	3.39
Machine Feeders and Offbearers.................	220	3.24
Textile Machine Setters and Set-up Operators....	200	2.95
Menders..	170	2.51
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers...............	150	2.21
Textile Bleaching and Dyeing Machine Operators and Tenders.................................	150	2.21
Textile Draw-out Machine Operators and Tenders..	140	2.06
Crushing, Grading, Mixing, and Blending Machine Operators and Tenders.................	130	1.92
Total....................	3,610	53.24

Ten Occupations Most Frequently Reported by Employers

Occupation	Employ-ment	Percent of Units Reporting the Occupation
Textile Machine Operators and Tenders, Winding, Twisting, Knitting, Weaving and Cutting.......	1,890	79
General Managers and Top Executives............	80	74
Industrial Production Managers.................	50	55
Machinery Maintenance Mechanics, Textile Machines.....................................	330	52
Janitors and Cleaners, except Maids and Housekeeping Cleaners........................	50	50
Secretaries....................................	40	50
First Line Supervisors and Manager/Supervisors, Production and Operating Workers..............	230	48
Traffic, Shipping, and Receiving Clerks.........	50	48
Bookkeeping, Accounting, and Auditing Clerks....	30	38
Maintenance Repairers, General Utility..........	50	38

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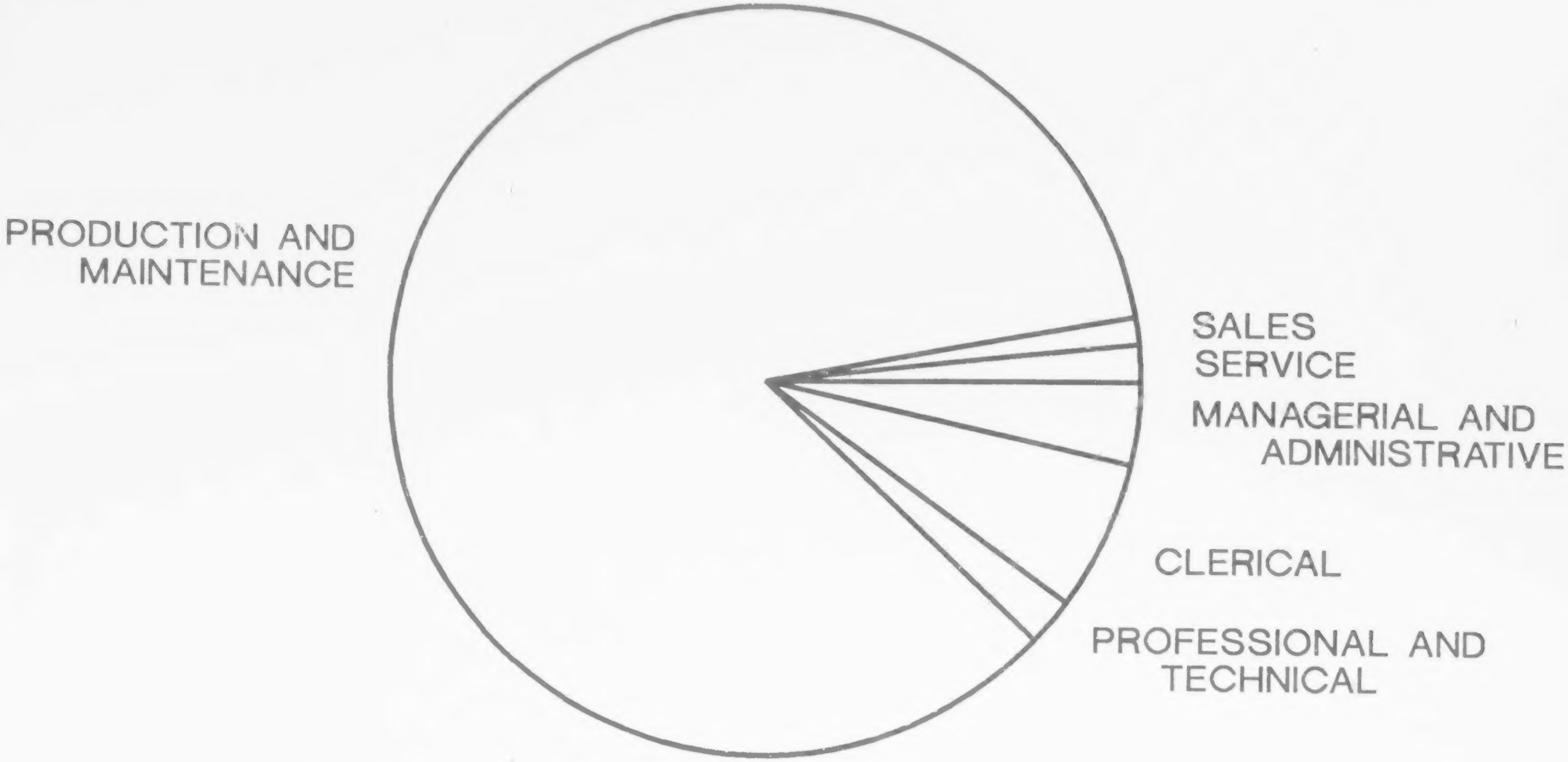
Figure 4

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN TEXTILE MILL PRODUCTS



TEXTILE MILL PRODUCTS
SIC 22
April 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	6,780	100.00	na	na
Managerial and Administrative Occupations	240	3.54	na	na
Financial Managers	20	0.29	9	26
Personnel, Training, and Labor Relations Managers	10	0.15	12	24
Purchasing Managers	10	0.15	2	17
Marketing, Advertising, and Public Relations Managers	10	0.15	8	14
Engineering, Mathematical, and Natural Sciences Managers	20	0.29	14	12
Industrial Production Managers	50	0.74	5	55
General Managers and Top Executives	80	1.18	4	74
All Other Managers and Administrators	40	0.59	na	na
Professional, Paraprofessional, and Technical Occupations	140	2.06	na	na
Accountants and Auditors	20	0.29	10	21
Purchasing Agents, except Wholesale, Retail, and Farm Products	10	0.15	4	14
Personnel, Training, and Labor Relations Specialists	10	0.15	2	12
Cost Estimators	10	0.15	2	12
All Other Management Support Workers	20	0.29	na	na
Industrial Engineers, except Safety	10	0.15	5	17
Mechanical Engineers	10	0.15	9	12
Industrial Engineering Technicians and Technologists	10	0.15	na	10
Systems Analysts, Electronic Data Processing	10	0.15	6	14
Computer Programmers	10	0.15	2	14
Health Practitioners, Technologists, Technicians, and Related Health Occupations	10	0.15	19	10
Designers, except Interior Designers	10	0.15	2	14
Sales and Related Occupations	80	1.18	na	na
First Line Supervisors and Manager/Supervisors, Sales and Related Occupations	30	0.44	4	17
Sales Representatives, except Scientific and Related Products and Services, and Retail	30	0.44	na	17
Salespersons, Retail	20	0.29	20	10
Clerical and Administrative Support Occupations	440	6.49	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	30	0.44	14	24
Adjustment Clerks	10	0.15	15	10
Secretaries	40	0.59	3	50
Receptionists and Information Clerks	10	0.15	5	19
Personnel Clerks, except Payroll and Timekeeping	10	0.15	21	12
Order Clerks	10	0.15	17	10
Procurement Clerks	10	0.15	9	7
Bookkeeping, Accounting, and Auditing Clerks	30	0.44	7	38
Payroll and Timekeeping Clerks	20	0.29	3	29
Billing, Cost, and Rate Clerks	30	0.44	5	29
General Office Clerks	70	1.03	3	36
Computer Operators, except Peripheral Equipment	10	0.15	na	7
Data Entry Keyers, except Composing	20	0.29	5	14
Switchboard Operators	10	0.15	na	14
Production, Planning, and Expediting Clerks	20	0.29	2	29
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	10	0.15	3	10
Stock Clerks, Stockroom, Warehouse, or Storage Yard	20	0.29	3	26
Traffic, Shipping, and Receiving Clerks	50	0.74	7	48
All Other Material Recording, Scheduling, and Distributing Workers	10	0.15	na	na
All Other Clerical and Administrative Support Workers	20	0.29	na	na
Service Occupations	110	1.62	na	na
Guards and Watch Guards	60	0.88	4	33
Janitors and Cleaners, except Maids and Housekeeping Cleaners	50	0.74	4	50

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Production, Construction, Operating, Maintenance, and Material Handling Occupations	5,770	85.10	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	20	0.29	8	19
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	230	3.39	3	48
First Line Supervisors and Manager/Supervisors, Transportation and Material Moving Machine and Vehicle Occupations	10	0.15	1	12
First Line Supervisors and Manager/Supervisors, Helpers, Laborers, and Material Movers, Hand	60	0.88	4	17
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance, and Related	20	0.29	na	na
Precision Inspectors, Testers, and Graders	20	0.29	9	10
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	150	2.21	2	29
Machinery Maintenance Mechanics, Textile Machines	330	4.87	12	52
Machinery Maintenance Mechanics, Sewing Machines	10	0.15	15	7
All Other Machinery Maintenance Mechanics	60	0.88	11	12
Millwrights	30	0.44	8	17
Machinery Maintenance Workers	20	0.29	22	17
Maintenance Repairers, General Utility	50	0.74	14	38
Menders	170	2.51	1	21
All Other Mechanics, Installers, and Repairers	30	0.44	na	na
Carpenters	20	0.29	na	17
Electricians	30	0.44	4	29
Plumbers and Pipefitters	10	0.15	na	10
All Other Construction and Extractive Workers, except Helpers	10	0.15	na	na
Machinists	20	0.29	8	21
Precision Dyers	10	0.15	6	10
All Other Precision Textile, Apparel, and Furnishings Workers	30	0.44	na	na
Textile Machine Setters and Setup Operators	200	2.95	8	29
Textile Machine Operators and Tenders, Winding, Twisting, Knitting, Weaving, and Cutting	1,890	27.88	1	79
Extruding and Forming Machine Operators and Tenders, Synthetic or Glass Fibers	30	0.44	28	10
Textile Draw-Out Machine Operators and Tenders	140	2.06	16	21
Textile Bleaching and Dyeing Machine Operators and Tenders	150	2.21	1	21
Sewing Machine Operators, Nongarment	50	0.74	28	17
Pressing Machine Operators and Tenders, Textile, Garment, and Related Materials	40	0.59	na	10
Boiler Operators and Tenders, Low Pressure	20	0.29	3	12
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders	130	1.92	36	12
Packaging and Filling Machine Operators and Tenders	30	0.44	5	10
All Other Machine Setters and Setup Operators	40	0.59	na	na
All Other Machine Operators and Tenders	400	5.90	na	na
Hand Sewers	80	1.18	6	14
Cutters and Trimmers, Hand	30	0.44	30	10
Portable Machine Cutters	10	0.15	21	10
All Other Hand Workers	10	0.15	na	na
Truck Drivers, Heavy or Tractor Trailer	50	0.74	1	26
Truck Drivers, Light, including Delivery and Route Workers	20	0.29	8	19
All Other Transportation and Related Workers	10	0.15	na	na
Industrial Truck and Tractor Operators	50	0.74	10	21
All Other Material Moving Equipment Operators	20	0.29	na	na
Mechanic and Repairer Helpers	30	0.44	4	10
Machine Feeders and Offbearers	220	3.24	7	17
Freight, Stock, and Material Movers, Hand	80	1.18	9	21
Hand Packers and Packagers	70	1.03	12	17
All Other Helpers, Laborers, and Material Movers, Hand	630	9.29	na	na

APPAREL AND OTHER TEXTILE PRODUCTS
SIC 23

This major industry group, known as the cutting-up and needle trades, includes establishments producing clothing and fabricating products by cutting and sewing purchased woven or knit textile fabrics and related materials such as leather, rubberized fabrics, plastics, and furs.

Employment in this industry showed steady growth between 1975 and 1980 adding 1,300 workers, increasing employment by 39 percent to 4,700 employees. Then for several years employment fluctuated by about 100 around this 4,700 level until dropping to 4,300 workers in 1986.

In 1986, total wages paid to employees of the apparel and other textile products industry totaled $52 million. This equates to an average annual wage of $12,028 per worker.

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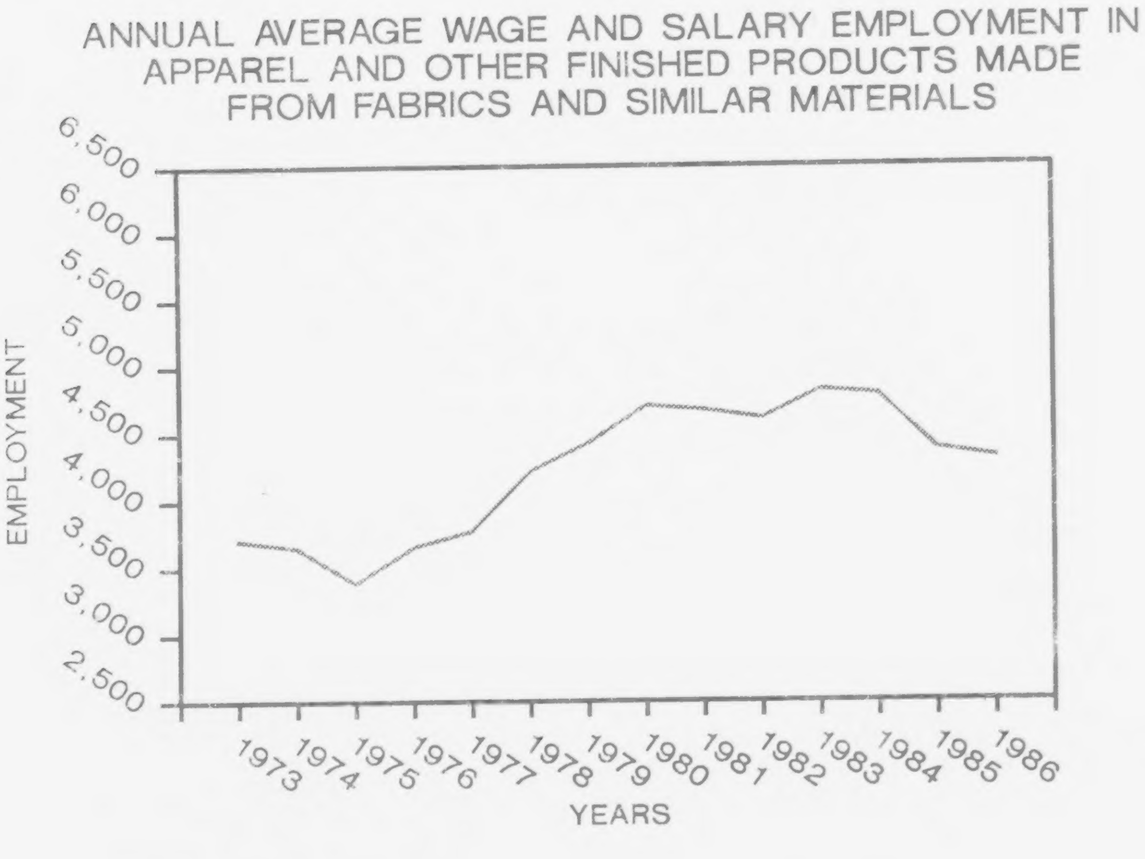
Figure 5



Apparel and Other Finished Products Made From Fabrics and Similar Materials
SIC 23
April 1986

Ten Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Sewing Machine Operators, Garment................	2,110	48.06
Sewers, Hand......................................	180	4.10
General Office Clerks...........................	150	3.42
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers...............	130	2.96
Sewing Machine Operators, Nongarment............	120	2.73
First Line Supervisors and Manager/Supervisors, Production and Operating Workers..............	110	2.51
Pressing Machine Operators and Tenders, Texile, Garment, and Related Materials........	100	2.28
Cutters and Trimmers, Hand......................	70	1.59
General Managers and Top Executives.............	70	1.59
Traffic, Shipping, and Receiving Clerks..........	70	1.59
Total.....................	3,110	70.84

Ten Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives..............	70	69
Sewing Machine Operators, Garment................	2,110	59
First Line Supervisors and Manager/Supervisors, Production and Operating Workers...............	110	56
Industrial Production Managers...................	40	53
Janitors and Cleaners, except Maids and Housekeeping Cleaners.........................	40	44
Cutters and Trimmers, Hand.......................	70	41
General Office Clerks............................	150	41
Secretaries......................................	40	41
Machinery Maintenance Mechanics, Sewing Machines.	50	38
Traffic, Shipping, and Receiving Clerks..........	70	33

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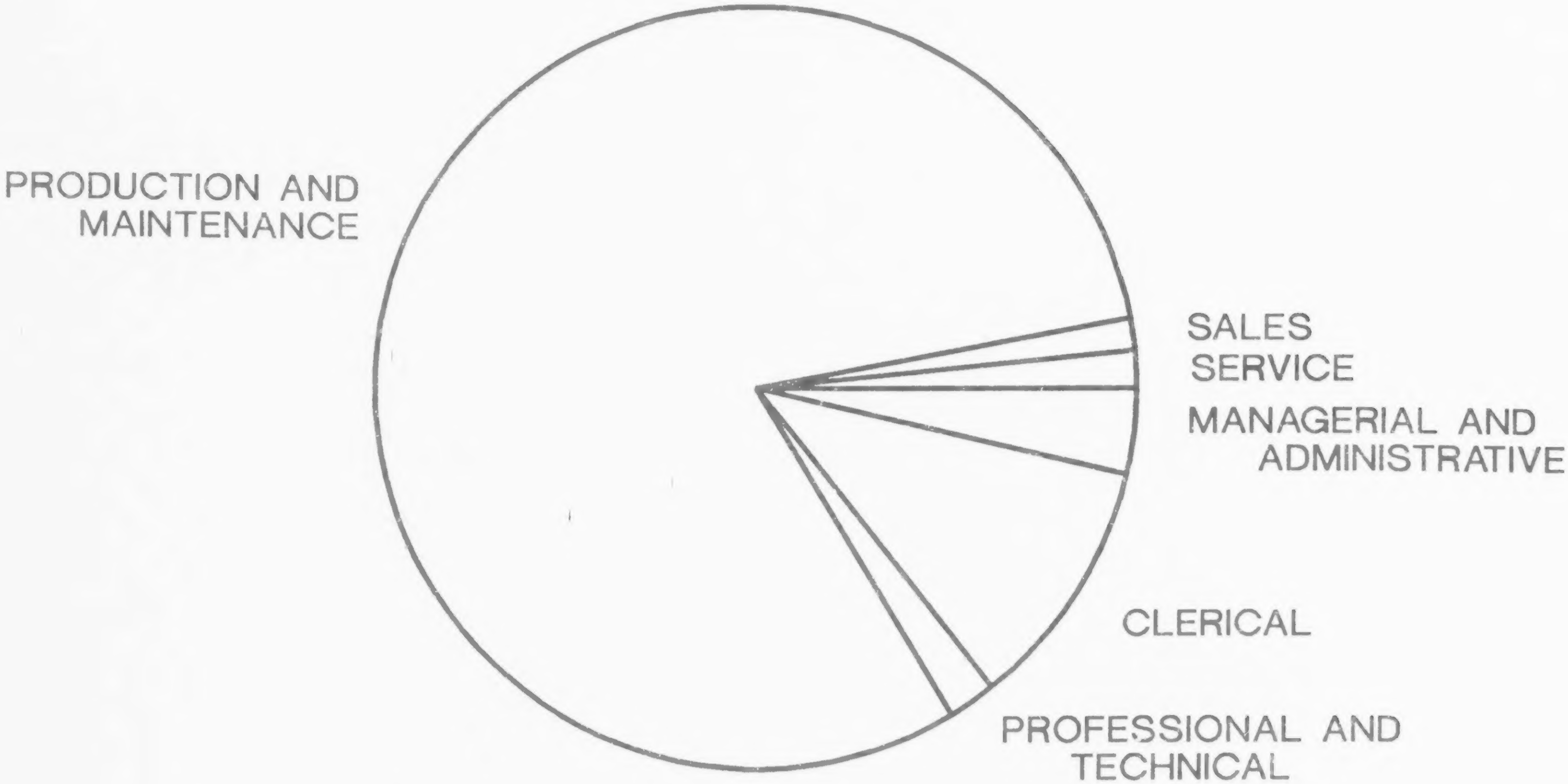
Figure 6

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN APPAREL AND OTHER FINISHED PRODUCTS MADE FROM FABRICS AND SIMILAR MATERIALS



APPAREL AND OTHER FINISHED PRODUCTS
MADE FROM FABRICS AND SIMILAR MATERIALS
SIC 23
April 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	4,390	100.00	na	na
Managerial and Administrative Occupations	160	3.64	na	na
Financial Managers	10	0.23	14	13
Personnel, Training, and Labor Relations Managers	10	0.23	15	22
Purchasing Managers	10	0.23	2	13
Industrial Production Managers	40	0.91	7	53
General Managers and Top Executives	70	1.59	6	69
All Other Managers and Administrators	20	0.46	na	na
Professional, Paraprofessional, and Technical Occupations	90	2.05	na	na
Cost Estimators	10	0.23	na	9
All Other Management Support Workers	20	0.46	na	na
Industrial Engineers, except Safety	10	0.23	10	13
Mechanical Engineers	10	0.23	9	9
Industrial Engineering Technicians and Technologists	10	0.23	9	16
Systems Analysts, Electronic Data Processing	10	0.23	1	13
Teachers and Instructors, Vocational Education and Training	10	0.23	20	13
Designers, except Interior Designers	10	0.23	25	16
Sales and Related Occupations	60	1.37	na	na
Sales Representatives, except Scientific and Related Products and Services, and Retail	20	0.46	27	22
Salespersons, Retail	30	0.68	12	28
All Other Sales and Related Workers	10	0.23	na	na
Clerical and Administrative Support Occupations	470	10.71	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	20	0.46	2	19
Secretaries	40	0.91	6	41
Personnel Clerks	10	0.23	na	9
Order Clerks	10	0.23	8	9
Procurement Clerks	10	0.23	3	9
Bookkeeping, Accounting, and Auditing Clerks	30	0.68	7	28
Payroll and Timekeeping Clerks	20	0.46	11	22
General Office Clerks	150	3.42	3	41
Data Entry Keyers, except Composing	10	0.23	3	13
All Other Office Machine Operators	10	0.23	na	na
Production, Planning, and Expediting Clerks	20	0.46	3	16
Stock Clerks, Stockroom, Warehouse, or Storage Yard	30	0.68	8	13
Traffic, Shipping, and Receiving Clerks	70	1.59	3	38
All Other Material Recording, Scheduling, and Distributing Workers	10	0.23	na	na
All Other Clerical and Administrative Support Workers	30	0.68	na	na
Service Occupations	70	1.59	na	na
First Line Supervisors and Manager/Supervisors, Service	10	0.23	2	9
Guards and Watch Guards	10	0.23	6	9
Janitors and Cleaners, except Maids and Housekeeping Cleaners	40	0.91	2	44
All Other Cleaning and Building Service Workers, except Private Households	10	0.23	na	na
Production, Construction, Operating, Maintenance, and Material Handling Occupations	3,540	80.64	na	na
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	110	2.51	3	56
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance, and Related	30	0.68	na	na
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	130	2.96	9	28
Machinery Maintenance Mechanics, Sewing Machines	50	1.14	3	38
Maintenance Repairers, General Utility	10	0.23	24	9
All Other Mechanics, Installers, and Repairers	10	0.23	na	na

SIC 23 (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Construction and Extractive Workers, except Helpers	30	0.68	na	na
Fabric and Apparel Patternmakers and Layout Workers	30	0.68	6	19
All Other Precision Textile, Apparel, and Furnishings Workers	20	0.46	na	na
Screen Printing Machine Setters and Setup Operators	30	0.68	30	13
Textile Machine Operators and Tenders, Winding, Twisting, Knitting, Weaving, and Cutting	20	0.46	35	9
Sewing Machine Operators, Garment	2,110	48.06	2	59
Sewing Machine Operators, Nongarment	120	2.73	16	34
Pressing Machine Operators and Tenders, Textile, Garment, and Related Materials	100	2.28	na	25
All Other Machine Operators and Tenders	20	0.46	na	na
Sewers, Hand	180	4.10	9	16
Cutters and Trimmers, Hand	70	1.59	11	41
Portable Machine Cutters	40	0.91	5	34
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	40	0.91	33	19
All Other Hand Workers	100	2.28	na	na
Material Moving Equipment Operators	10	0.23	na	na
Hand Packers and Packagers	50	1.14	5	22
All Other Helpers, Laborers, and Material Movers, Hand	230	5.24	na	na

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LUMBER AND WOOD PRODUCTS
SIC 24

This major industry group includes logging camps engaged in cutting timber and pulpwood, merchant sawmills, lath mills, shingle mills, cooperage stock mills, planing mills, and plywood and veneer mills engaged in producing lumber and wood basic materials; and establishments engaged in manufacturing finished articles made entirely or mainly of wood or wood substitutes.

Employment in this industry was 14,200 in 1973, the same as it was ten years later in 1983. However, employment saw great fluctuations during the intervening years reaching a high of 14,900 in 1979 and a low of 12,300 in 1982. In 1986, the employment level was in between these two extremes, registering 13,500 workers.

In 1986, total wages paid to employees of the lumber and wood products industry totaled $218.9 million. This equates to an average annual wage of $16,367 per worker.

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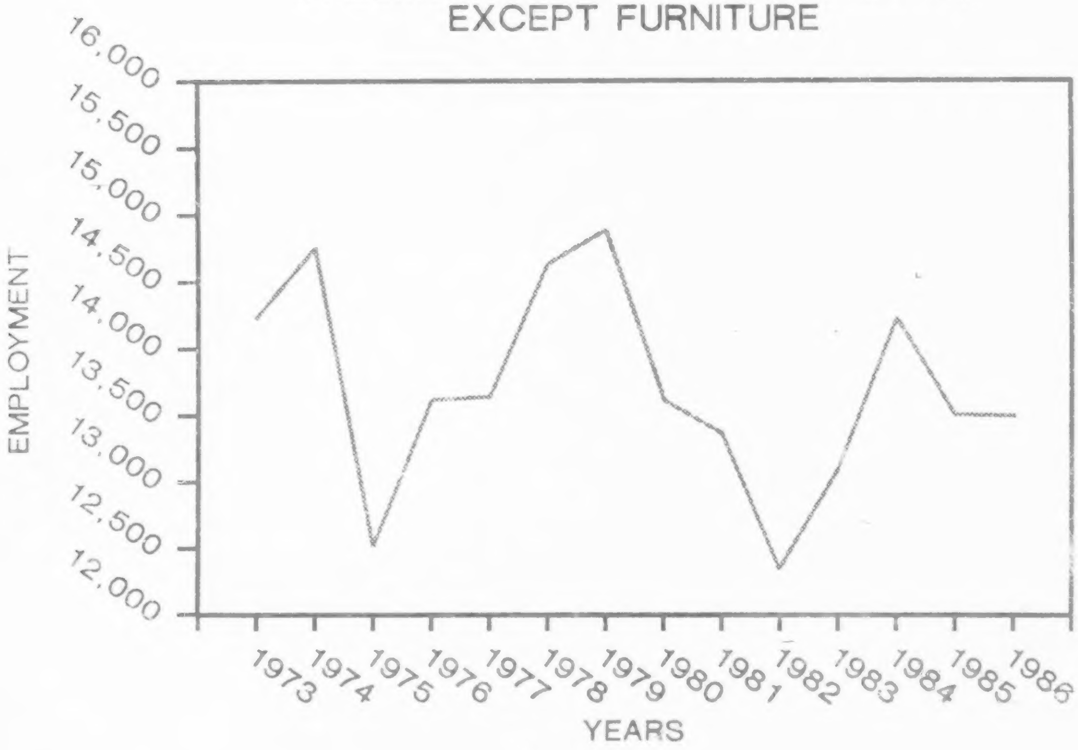
Figure 7

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT
IN LUMBER AND WOOD PRODUCTS,
EXCEPT FURNITURE



Lumber and Wood Products, except Furniture
SIC 24
May 1986

Ten Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Woodworking Machine Operators and Tenders, except Sawing	940	7.79
Sawing Machine Operators and Tenders	910	7.55
Fallers and Buckers	770	6.38
Logging Tractor Operators	660	5.47
Truck Drivers, Heavy or Tractor Trailer	520	4.31
Machine Feeders and Offbearers	480	3.98
General Managers and Top Executives	330	2.74
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	330	2.74
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	320	2.65
Maintenance Repairers, General Utility	300	2.49
Total	5,560	46.10

Ten Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	300	57
Truck Drivers, Heavy or Tractor Trailer	520	47
Sawing Machine Operators and Tenders	910	41
Bookkeeping, Accounting, and Auditing Clerks	170	38
General Office Clerks	220	35
Fallers and Buckers	770	33
Secretaries	130	33
Logging Tractor Operators	660	32
Maintenance Repairers, General Utility	300	32
Head Sawyers	240	31

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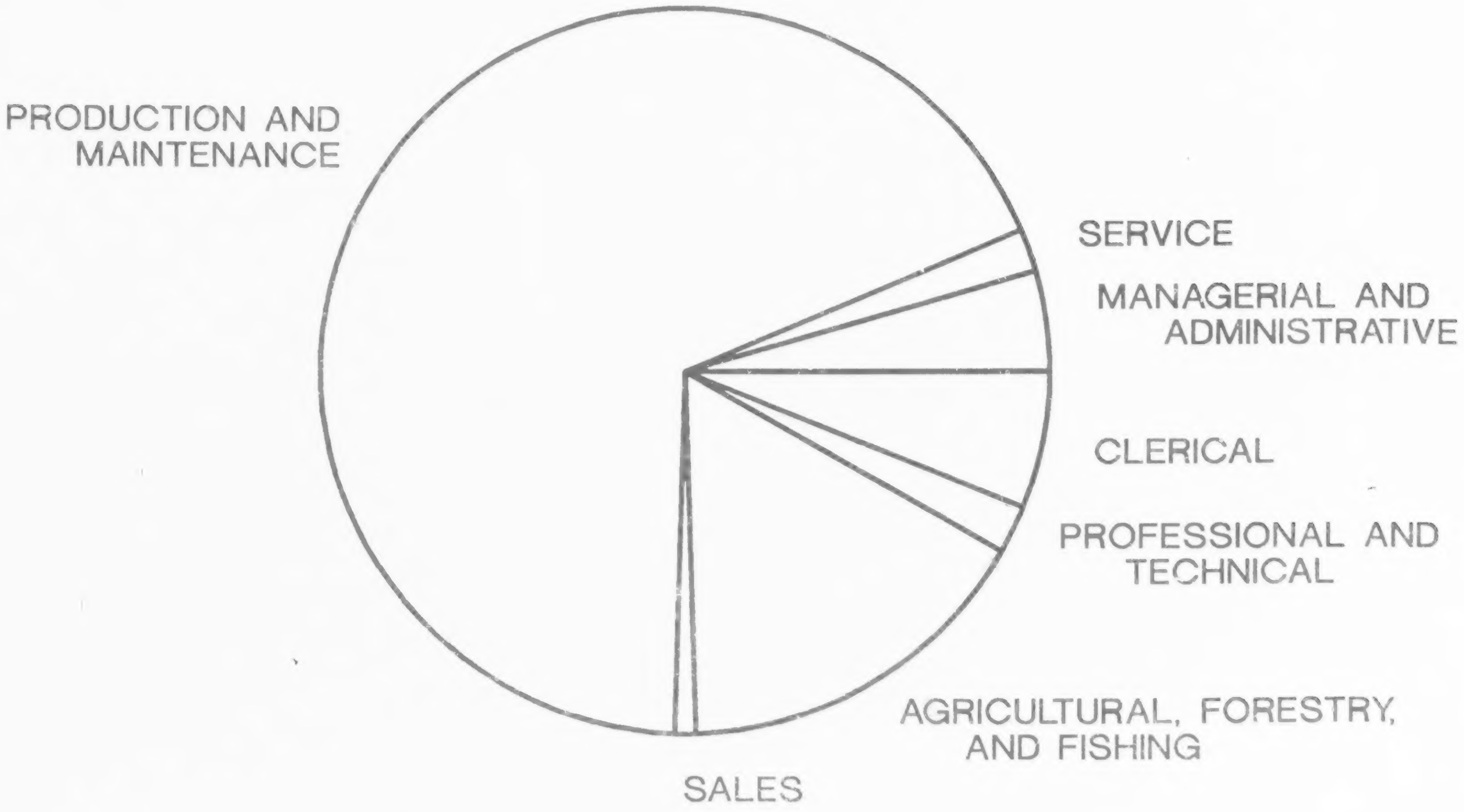
Figure 8

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN LUMBER AND WOOD PRODUCTS, EXCEPT FURNITURE



LUMBER AND WOOD PRODUCTS, EXCEPT FURNITURE
SIC 24
May 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	12,060	100.00	na	na
Managerial and Administrative Occupations	540	4.48	na	na
Financial Managers	30	0.25	13	10
Personnel, Training, and Labor Relations Managers	20	0.17	14	8
Purchasing Managers	10	0.08	10	4
Marketing, Advertising, and Public Relations Managers	20	0.17	23	5
Engineering, Mathematical, and Natural Sciences Managers	10	0.08	19	2
Industrial Production Managers	90	0.75	12	20
General Managers and Top Executives	330	2.74	6	57
All Other Managers and Administrators	30	0.25	na	na
Professional, Paraprofessional, and Technical Occupations	260	2.16	na	na
Accountants and Auditors	60	0.50	15	13
Purchasing Agents, except Wholesale, Retail, and Farm Products	40	0.33	12	12
Personnel, Training, and Labor Relations Specialists	10	0.08	19	2
Cost Estimators	30	0.25	16	6
Mechanical Engineers	10	0.08	17	4
Drafters	40	0.33	4	6
Foresters and Conservation Scientists	40	0.33	6	3
Computer Programmers	10	0.08	7	3
Health Practitioners, Technologists, Technicians, and Related Health Occupations	10	0.08	8	2
All Other Professional, Paraprofessional, and Technical Workers	10	0.08	na	na
Sales and Related Occupations	110	0.91	na	na
First Line Suprvisors and Manager/Supervisors, Sales and Related Occupations	20	0.17	8	5
Sales Representatives, except Scientific and Related Products and Services, and Retail	70	0.58	11	11
Salespersons, Retail	10	0.08	14	3
All Other Sales and Related Workers	10	0.08	na	na
Clerical and Administrative Support Occupations	740	6.14	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support	20	0.17	24	7
Secretaries	130	1.08	11	33
Personnel Clerks, except Payroll and Timekeeping	10	0.08	19	3
Order Clerks	10	0.08	23	2
Bookkeeping, Accounting, and Auditing Clerks	170	1.41	12	38
Payroll and Timekeeping Clerks	30	0.25	12	9
Billing, Cost, and Rate Clerks	10	0.08	26	3
General Office Clerks	220	1.82	9	35
Computer Operators, except Peripheral Equipment	10	0.08	21	3
Data Entry Keyers	10	0.08	27	2
Switchboard Operators	10	0.08	20	3
Production, Planning, and Expediting Clerks	10	0.08	23	3
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	20	0.17	26	4
Stock Clerks, Stockroom, Warehouse, or Storage Yard	20	0.17	14	6
Traffic, Shipping, and Receiving Clerks	60	0.50	7	13
Service Occupations	230	1.91	na	na
Guards and Watch Guards	90	0.75	11	11
Janitors and Cleaners, except Maids and Housekeeping Cleaners	100	0.83	9	21
All Other Cleaning and Building Service Workers, except Private Households	10	0.08	na	na
All Other Service Workers	30	0.25	na	na
Agricultural, Forestry, Fishing, and Related Occupations	1,960	16.25	na	na
First Line Supervisors, Agricultural, Forestry, Fishing, and Related Occupations	70	0.58	19	15
Fallers and Buckers	770	6.38	7	33
Choke Setters	40	0.33	47	3
Log Handling Equipment Operators	220	1.82	11	27
Logging Tractor Operators	660	5.47	7	32

SIC 24 (continued)

Occupation	Estimated Emplcy-ment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Log Graders and Scalers	160	1.33	10	25
All Other Agricultural, Forestry, Fishing, and Related Workers	40	0.33	na	na
Production, Construction, Operating, Maintenance, and Material Handling Occupations	8,220	68.16	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	40	0.33	11	11
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	250	2.07	7	28
First Line Supervisors and Manager/Supervisors, Transportation and Material Moving Machine and Vechicle Occupations	10	0.08	19	3
First Line Supervisors and Manager/Supervisors, Helpers, Laborers, and Material Movers, Hand	30	0.25	35	3
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance, and Related	20	0.17	na	na
Precision Inspectors, Testers, and Graders	10	0.08	31	2
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	330	2.74	13	20
Machinery Maintenance Mechanics	120	1.00	13	14
Millwrights	60	0.50	15	5
Machinery Maintenance Workers	80	0.66	16	10
Maintenance Repairers, General Utility	300	2.49	7	32
Bus and Truck Mechanics and Diesel Engine Specialists	80	0.66	7	8
Mobile Heavy Equipment Mechanics, except Engines	50	0.41	15	11
All Other Mechanics, Installers, and Repairers	10	0.08	na	na
Carpenters	260	2.16	3	11
Electricians	60	0.50	13	7
Plumbers, Pipefitters, and Steamfitters	10	0.08	10	2
Construction and Extractive Workers, except Helpers	10	0.08	na	na
Tool and Die Makers	10	0.08	43	2
Machinists	40	0.33	11	8
Tool Grinders, Filers, Sharpeners, and Other Precision Grinders	80	0.66	11	10
Wood Machinists	190	1.58	16	8
Cabinetmakers and Bench Carpenters	150	1.24	13	6
All Other Precision Woodworkers	20	0.17	na	na
All Other Precision Workers	10	0.08	na	na
Sawing Machine Setters and Setup Operators	50	0.41	21	6
Head Sawyers	240	1.99	8	31
Sawing Machine Operators and Tenders	910	7.55	11	41
Woodworking Machine Setters and Setup Operators, except Sawing	270	2.24	15	18
Woodworking Machine Operators and Tenders, except Sawing	940	7.79	15	23
Furnace, Kiln, Oven, Drier, or Kettle Operators and Tenders	70	0.58	28	9
Boiler Operators and Tenders, Low Pressure	130	1.08	12	10
Coating, Painting, and Spraying Machine Setters and Setup Operators	20	0.17	36	3
Coating, Painting, and Spraying Machine Operators and Tenders	40	0.33	20	5
Cementing and Gluing Machine Operators and Tenders	20	0.17	28	2
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders	20	0.17	31	4
Packaging and Filling Machine Operators and Tenders	110	0.91	21	6
All Other Machine Setters and Setup Operators	30	0.25	na	na
All Other Machine Operators and Tenders	260	2.16	na	na
Welders and Cutters	10	0.08	38	2
Grinding and Polishing Workers, Hand	10	0.08	31	2
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	320	2.65	16	11
All Other Hand Workers	60	0.50	na	na
Plant and System Operators	10	0.08	na	na
Truck Drivers, Heavy or Tractor Trailer	520	4.31	5	47
Truck Drivers, Light, including Delivery and Route Workers	10	0.08	15	4
Grader, Dozer, and Scraper Operators	60	0.50	11	10
Industrial Truck and Tractor Operators	220	1.82	8	23
Conveyor Operators and Tenders	120	1.00	21	5
All Other Material Moving Equipment Operators	70	0.58	na	na
Mechanic and Repairer Helpers	40	0.33	5	2
Construction Trades and Extractive Worker Helpers	50	0.41	31	2
Machine Feeders and Offbearers	480	3.98	11	23
Freight, Stock, and Material Movers, Hand	270	2.24	9	21
Hand Packers and Packagers	280	2.32	20	9
All Other Helpers, Laborers, and Material Movers, Hand	350	2.90	13	8

FURNITURE AND FIXTURES
SIC 25

This major industry group includes establishments engaged in manufacturing household, office, public building, and restaurant furniture; and office and store fixtures.

Employment in this industry has fluctuated by less than 300 workers over the last 13 years, showing a 29 percent gain from 1973 to 1986, ending this period with 1,100 employees. This growth has not been constant, however, as employment was at the 1986 level back in 1978 also.

In 1986, total wages paid to employees of the furniture and fixtures industry totaled $19 million. This equates to an average annual wage of $17,191 per worker.

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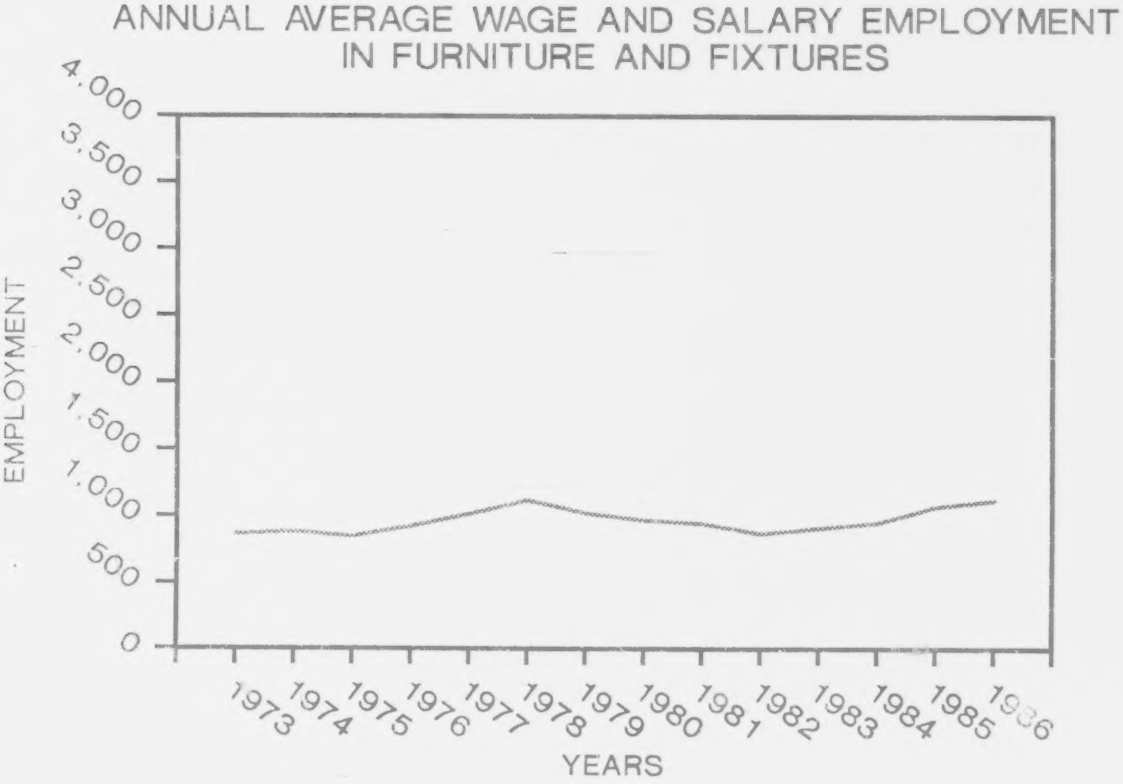
Figure 9



Furniture and Fixtures
SIC 25
May 1986

Seven Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Woodworking Machine Operators and Tenders, except Sawing	110	10.28
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	80	7.48
Cabinetmakers and Bench Carpenters	80	7.48
Sawing Machine Operators and Tenders	50	4.67
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	40	3.74
Wood Machinists	40	3.74
Machine Feeders and Offbearers	30	2.80
Total	430	40.19

Nine Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	20	68
Cabinetmakers and Bench Carpenters	80	55
First Line Supervisors and Manager/Supervisors, Production, and Operating Workers	40	50
Industrial Production Managers	20	50
Secretaries	10	41
Traffic, Shipping, and Receiving Clerks	20	41
Wood Machinists	40	41
Bookkeeping, Accounting, and Auditing Clerks	10	36
Maintenance Repairers, General Utility	20	36

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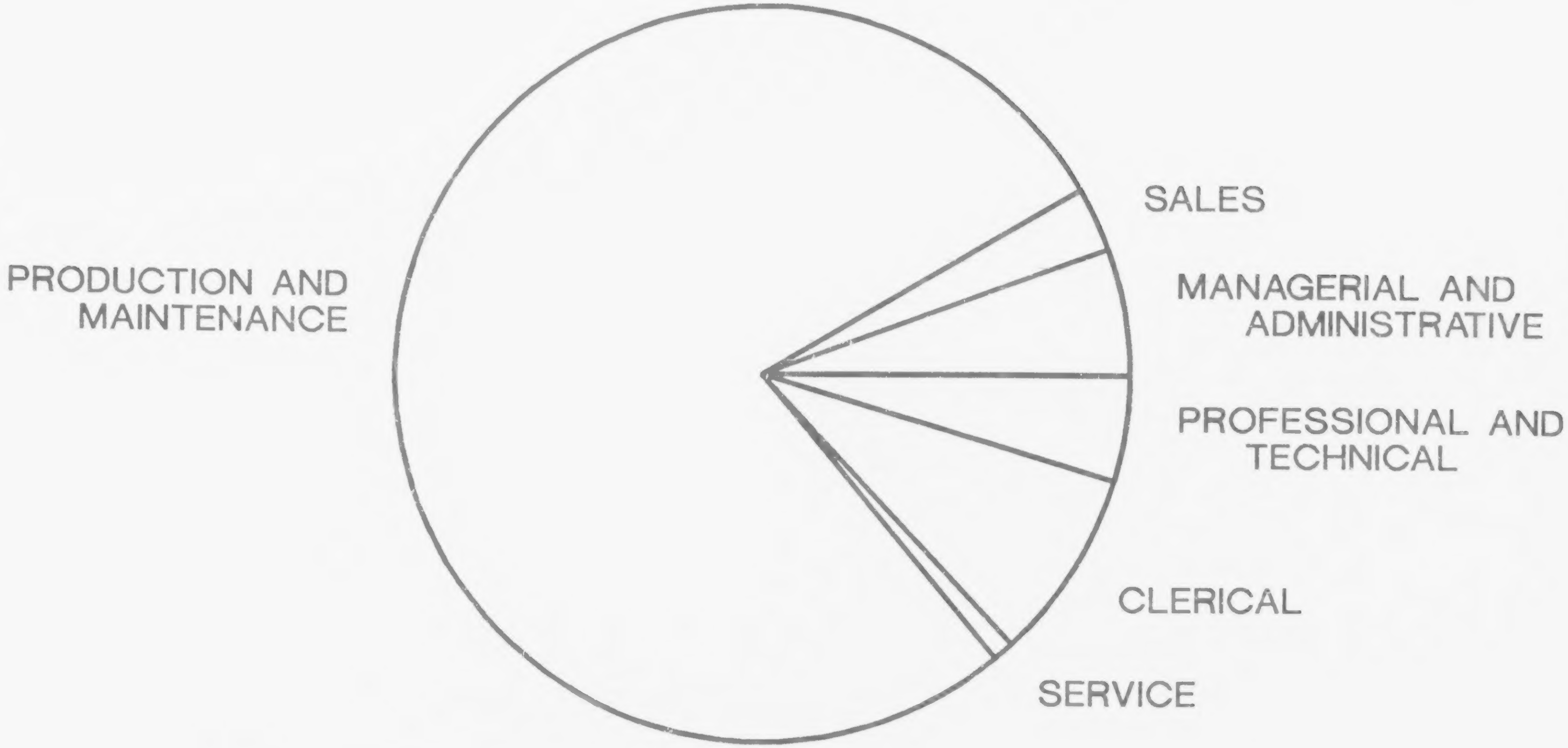
Figure 10

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN FURNITURE AND FIXTURES



FURNITURE AND FIXTURES
SIC 25
May 1986

Occupation	Estimated Employ-ment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	1,070	100.00	na	na
Managerial and Administrative Occupations	60	5.61	na	na
Financial Managers	10	0.93	na	14
Industrial Production Managers	20	1.87	9	50
General Managers and Top Executives	20	1.87	7	68
All Other Managers and Administrators	10	0.93	na	na
Professional, Paraprofessional, and Technical Occupations	50	4.67	na	na
Accountants and Auditors	10	0.93	15	23
Purchasing Agents, except Wholesale, Retail, and Farm Products	10	0.93	na	27
All Other Management Support Workers	10	0.93	na	na
Engineers	10	0.93	na	na
Engineering and Related Technicians and Technologists	10	0.93	na	na
Sales and Related Occupations	30	2.80	na	na
Sales Representatives, except Scientific and Related Products and Services, and Retail	10	0.93	18	23
All Other Sales and Related Workers	20	1.87	na	na
Clerical and Administrative Support Occupations	90	8.41	na	na
Secretaries	10	0.93	8	41
Bookkeeping, Accounting, and Auditing Clerks	10	0.93	10	36
General Office Clerks	10	0.93	3	27
Production, Planning, and Expediting Clerks	10	0.93	na	14
Stock Clerks, Stockroom, Warehouse, or Storage Yard	10	0.93	na	14
Traffic, Shipping, and Receiving Clerks	20	1.87	5	41
All Other Clerical and Administrative Support Workers	20	1.87	na	na
Service Occupation	10	0.93	na	na
Janitors and Cleaners, except Maids and Housekeeping Cleaners	10	0.93	6	23
Production, Construction, Operating, Maintenance, and Material Handling Occupations	830	77.57	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	10	0.93	na	14
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	40	3.74	4	50
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance and Related	10	0.93	na	na
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	10	0.93	19	14
Maintenance Repairers, General Utility	20	1.87	3	36
All Other Mechanics, Installers, and Repairers	10	0.93	na	na
Construction and Extractive Workers, except Helpers	10	0.93	na	na
Precision Metal Workers	60	5.61	na	na
Wood Machinists	40	3.74	5	41
Cabinetmakers and Bench Carpenters	80	7.48	11	55
Furniture Finishers	40	3.74	13	18
All Other Precision Woodworkers	10	0.93	na	na
Precision Textile, Apparel, and Furnishings Workers	10	0.93	na	na
Metal and Plastic Machine Setters, Operators, and Related Workers	40	3.74	na	na
Sawing Machine Operators and Tenders	50	4.67	4	27
Woodworking Machine Setters and Setup Operators, except Sawing	20	1.87	7	32
Woodworking Machine Operators and Tenders, except Sawing	110	10.28	7	32
Sewing Machine Operators, Nongarment	20	1.87	30	14
Boiler Operators and Tenders, Low Pressure	10	0.93	na	18
Coating, Painting, and Spraying Machine Operators and Tenders	20	1.87	6	23
Cementing and Gluing Machine Operators and Tenders	10	0.93	3	23
All Other Machine Setters and Setup Operators	10	0.93	na	na
All Other Machine Operators and Tenders	10	0.93	na	na
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	80	7.48	1	27

SIC 25 (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (±)	% of Units Reporting the Occupation
All Other Hand Workers	10	0.93	na	na
Motor Vehicle Operators	10	0.93	na	na
Machine Feeders and Offbearers	30	2.80	1	23
Hand Packers and Packagers	10	0.93	5	23
All Other Helpers, Laborers, and Material Movers, Hand	40	3.74	na	na

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PAPER AND ALLIED PRODUCTS
SIC 26

This major industry group includes the manufacture of pulps from wood and other cellulose fibers, and from rags; the manufacture of paper and paperboard; and the manufacture of paper and paperboard into converted products such as paper coated off the paper machine, paper bags, paper boxes, and envelopes.

Since 1973 employment has remained consistently within a plus or minus 300 range around 18,100 workers, except for the extra low years of 1975, 1976, and 1986 when employment reached 16,900, 17,300, and 17,200, respectively.

In 1986, total wages paid to employees of the paper and allied products industry totaled $568.4 million. This equates to an average annual wage of $32,801 per worker. This is the highest average annual wage paid in any manufacturing industry.

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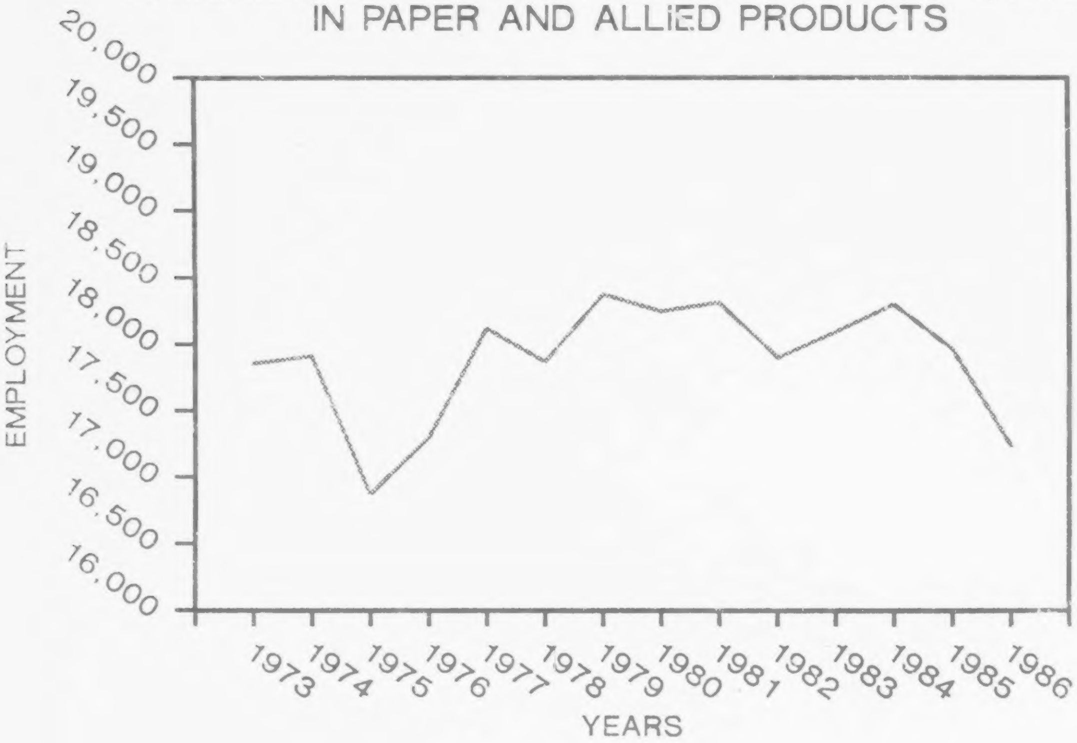
Figure 11

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN PAPER AND ALLIED PRODUCTS



Paper and Allied Products
SIC 26
April 1986

Ten Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Millwrights	930	5.34
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	620	3.56
Electricians	530	3.04
Packaging and Filling Machine Operators and Tenders	520	2.99
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders	480	2.76
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	470	2.70
Industrial Truck and Tractor Operators	460	2.64
Plumbers, Pipefitters, and Steamfitters	410	2.35
Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders	340	1.95
Machine Feeders and Offbearers	300	1.72
Total	5,060	29.05

Nine Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	140	89
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	620	81
Secretaries	150	74
Industrial Production Managers	180	63
Industrial Truck and Tractor Operators	460	59
Janitors and Cleaners, except Maids and Housekeeping Cleaners	180	56
Production, Planning, and Expediting Clerks	120	56
Accountants and Auditors	70	52
Financial Managers	30	52

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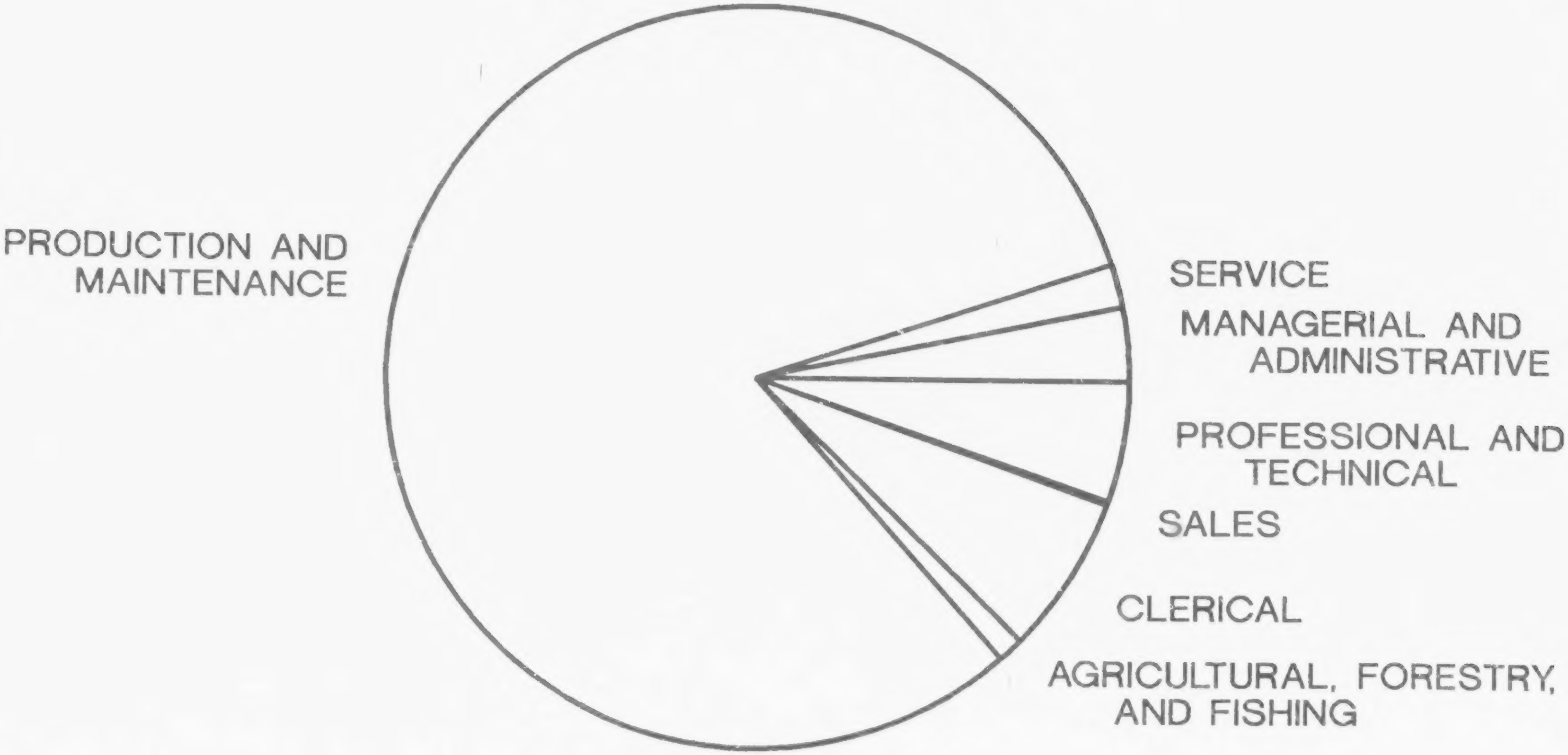
Figure 12

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN PAPER AND ALLIED PRODUCTS



PAPER AND ALLIED PRODUCTS
SIC 26
April 1986

Occupation	Estimated Employ-ment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	17,420	100.00	na	na
Managerial and Administrative Occupations	560	3.21	na	na
Financial Managers	30	0.17	6	52
Personnel, Training, and Labor Relations Managers	40	0.23	19	44
Purchasing Managers	20	0.11	12	41
Marketing, Advertising, and Public Relations Managers	10	0.06	23	19
Administrative Services Managers	10	0.06	31	15
Engineering, Mathematical, and Natural Sciences Managers	50	0.29	8	37
Industrial Production Managers	180	1.03	20	63
General Managers and Top Executives	140	0.80	17	89
All Other Managers and Administrators	80	0.46	na	na
Professional, Paraprofessional, and Technical Occupations	910	5.22	na	na
Accountants and Auditors	70	0.40	13	52
Purchasing Agents, except Wholesale, Retail, and Farm Products	40	0.23	8	37
Personnel, Training, and Labor Relations Specialists	50	0.29	17	41
All Other Management Support Workers	60	0.34	na	na
Chemical Engineers	120	0.69	16	37
Electrical and Electronic Engineers	60	0.34	12	37
Industrial Engineers, except Safety	30	0.17	34	22
Mechanical Engineers	130	0.75	10	44
All Other Engineers	10	0.06	16	19
Mechanical Engineering Technicians and Technologists	10	0.06	19	15
Drafters	20	0.11	21	22
All Other Engineering and Related Technicians and Technologists	50	0.29	na	na
Physical Scientists	20	0.11	na	na
Chemical Technicians and Technologists, except Health	80	0.46	25	22
All Other Physical and Life Science Technicians and Technologists	20	0.11	na	na
Systems Analysts, Electronic Data Processing	30	0.17	20	26
Computer Programmers	40	0.23	21	26
Health Practitioners, Technologists, Technicians, and Related Health Occupations	40	0.23	8	41
All Other Professional, Paraprofessional, and Technical Workers	30	0.17	na	na
Sales and Related Occupations	30	0.17	na	na
Sales Representatives, except Scientific and Related Products and Services, and Retail	30	0.17	10	30
Clerical and Administrative Support Occupations	1,210	6.95	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	40	0.23	14	44
Adjustment Clerks	30	0.17	25	22
Secretaries	150	0.86	10	74
Receptionists and Information Clerks	10	0.06	21	19
Typists	20	0.11	23	22
Personnel Clerks, except Payroll and Timekeeping	10	0.06	17	26
Order Clerks	30	0.17	19	26
Procurement Clerks	40	0.23	18	37
Bookkeeping, Accounting, and Auditing Clerks	90	0.52	19	44
Payroll and Timekeeping Clerks	50	0.29	17	44
Billing, Cost, and Rate Clerks	60	0.34	15	26
General Office Clerks	50	0.29	25	30
Computer Operators	20	0.11	18	30
Data Entry Keyers	30	0.17	22	26
All Other Office Machine Operators	10	0.06	na	na
Switchboard Operators	20	0.11	11	41
Production, Planning, and Expediting Clerks	120	0.69	13	56
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	60	0.34	16	22
Stock Clerks, Stockroom, Warehouse, or Storage Yard	180	1.03	12	44
Traffic, Shipping, and Receiving Clerks	120	0.69	24	44
All Other Material Recording, Scheduling, and Distributing Workers	30	0.17	na	na
All Other Clerical and Administrative Support Workers	40	0.23	na	na

Occupation	Estimated Employ-ment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Service Occupations	330	1.89	na	na
First Line Supervisors and Manager/Supervisors, Service	20	0.11	10	19
Guards and Watch Guards	120	0.69	18	30
Janitors and Cleaners, except Maids and Housekeeping Cleaners	180	1.03	12	56
All Other Service Workers	10	0.06	na	na
Agricultural, Forestry, Fishing, and Related Occupations	200	1.15	na	na
Production, Construction, Operating, Maintenance, and Material Handling Occupations	14,180	81.40	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	230	1.32	14	41
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	620	3.56	7	81
First Line Supervisors and Manager/Supervisors, Transportation and Material Moving	90	0.52	18	41
First Line Supervisors and Manager/Supervisors, Helpers, Laborers, and Material Movers, Hand	50	0.29	24	22
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance, and Related	30	0.17	na	na
Precision Inspectors, Testers, and Graders	70	0.40	28	11
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	470	2.70	15	44
Millwrights	930	5.34	7	37
Machinery Maintenance Workers	180	1.03	9	30
Automotive Mechanics	30	0.17	29	19
Bus and Truck Mechanics, and Diesel Engine Specialists	40	0.23	24	19
Precision Instrument Repairers	130	0.75	24	19
All Other Mechanics, Installers, and Repairers	410	2.35	na	na
Carpenters	30	0.17	26	15
Electricians	530	3.04	6	41
Painters and Paperhangers, Construction and Maintenance	60	0.34	15	33
Plumbers, Pipefitters, and Steamfitters	410	2.35	9	37
All Other Construction and Extractive Workers, except Helpers	40	0.23	na	na
Machinists	250	1.44	12	44
All Other Precision Workers	30	0.17	na	na
Printing Press Machine Setters and Setup Operators	10	0.06	19	11
Specialty Materials Printing Machine Setters and Setup Operators	50	0.29	32	11
Paper Goods Machine Setters and Setup Operators	240	1.38	22	37
Boiler Operators and Tenders, Low Pressure	80	0.46	18	22
Chemical Equipment Controllers and Operators	80	0.46	30	15
Chemical Equipment Tenders	70	0.40	22	22
Cutting and Slicing Machine Operators and Tenders	50	0.29	6	19
Cementing and Gluing Machine Operators and Tenders	70	0.40	16	22
Cleaning, Washing, and Pickling Equipment Operators and Tenders	120	0.69	19	26
Separating, Filtering, Clarifying, Precipitating, and Still Machine Operators and Tenders	110	0.63	31	19
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders	480	2.76	24	37
Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders	340	1.95	17	19
Packaging and Filling Machine Operators and Tenders	520	2.99	27	19
All Other Machine Setters and Setup Operators	640	3.67	na	na
All Other Machine Operators and Tenders	2,480	14.24	na	na
Welders and Cutters	80	0.46	16	26
All Other Hand Workers	170	0.98	na	na
Water and Liquid Waste Treatment Plant and System Operators	140	0.80	13	37
Power Distributors and Dispatchers	120	0.69	23	19
All Other Plant and System Operators	180	1.03	na	na
Truck Drivers, Heavy or Tractor Trailer	130	0.75	21	44
Truck Drivers, Light, including Delivery and Route Workers	40	0.23	18	30
Crane and Tower Operators	120	0.69	33	22
Industrial Truck and Tractor Operators	460	2.64	9	59
All Other Material Moving Equipment Operators	80	0.46	na	na
Machine Feeders and Offbearers	300	1.72	26	33
Freight, Stock, and Material Movers, Hand	210	1.21	21	41
Hand Packers and Packagers	190	1.09	12	30
All Other Helpers, Laborers, and Material Movers, Hand	1,990	11.42	na	na

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PRINTING, PUBLISHING, AND ALLIED INDUSTRIES
SIC 27

This major industry group includes establishments engaged in printing by one or more of the common processes, such as letterpress, lithography, gravure, or screen; and those establishments which perform services for printing trade, such as bookbinding, typesetting, engraving, photoengraving, and electrotyping. This major group also includes establishments engaged in publishing newspapers, books, and periodicals, regardless of whether or not they do their own printing.

Employment in this industry has shown a steady increase from 1973 to 1985, adding 2,000 workers. This reflects a 67 percent gain over this 12-year period as employment reached a high of 4,900, where it remained through 1986.

In 1986, total wages paid to employees of the printing and publishing industry totaled $89.1 million. This equates to an average annual wage of $17,766 per worker.

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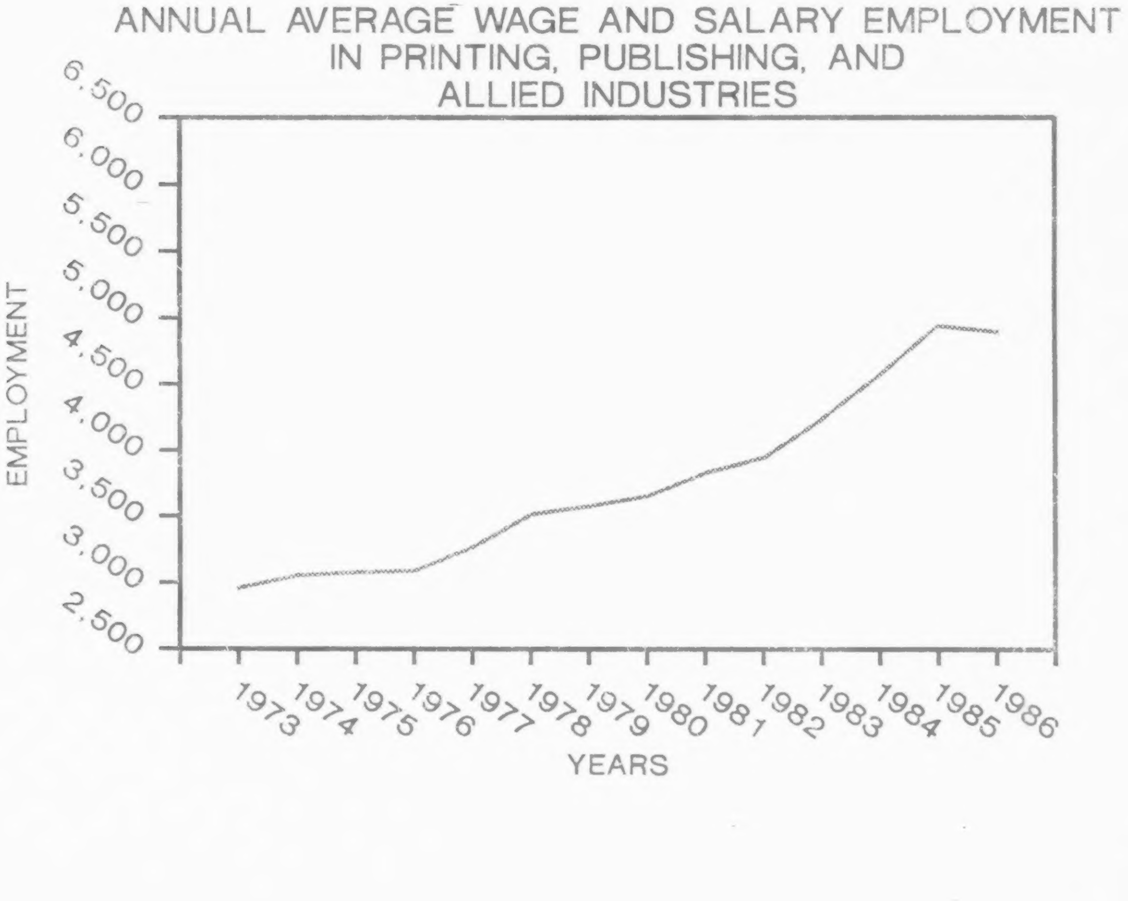
Figure 13



Printing, Publishing, and Allied Industries
SIC 27
May 1986

Eleven Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Reporters and Correspondents	300	6.07
Writers and Editors	260	5.26
Machine Feeders and Offbearers	240	4.86
Printing Press Machine Operators and Tenders	240	4.86
Typesetting and Composing Machine Operators and Tenders	240	4.86
Sales Agents, Advertising	190	3.85
Offset Lithographic Press Setters and Setup Operators	180	3.64
General Managers and Top Executives	160	3.24
Precision Lithography and Photoengraving Workers	140	2.83
Bookkeeping, Accounting, and Auditing Clerks	120	2.43
Hand Packers and Packagers	120	2.43
Total	2,190	44.33

Eleven Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	160	67
Bookkeeping, Accounting, and Auditing Clerks	120	52
Typesetting and Composing Machine Operators and Tenders	240	38
Offset Lithographic Press Setters and Setup Operators	180	35
Precision Lithography and Photoengraving Workers	140	35
Marketing, Advertising, and Public Relations Managers	90	33
Receptionists and Information Clerks	50	33
Printing Press Machine Operators and Tenders	240	32
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	100	31
Industrial Production Managers	50	31
Writers and Editors	260	31

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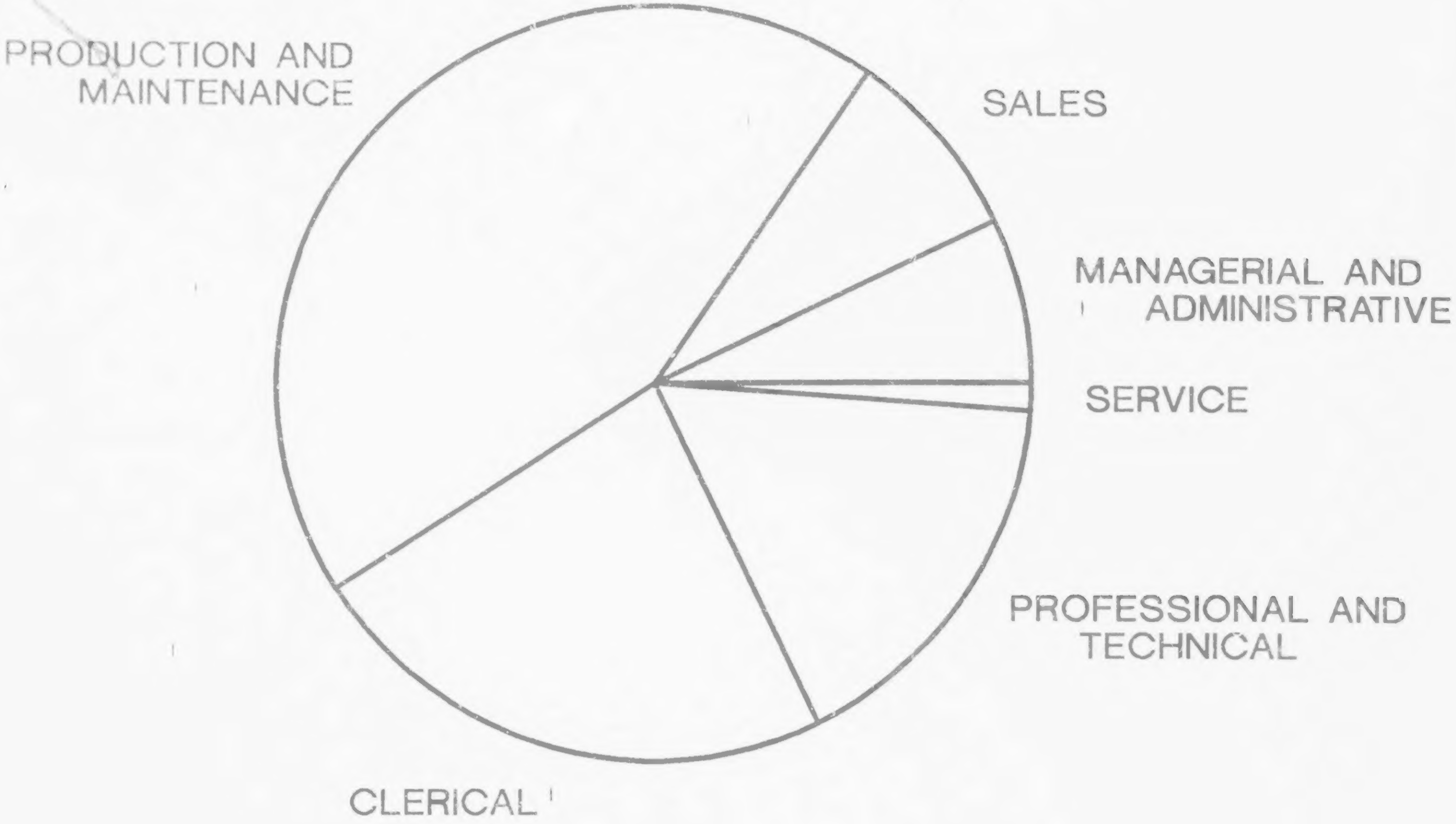
Figure 14

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN PRINTING, PUBLISHING, AND ALLIED INDUSTRIES



PRINTING, PUBLISHING, AND ALLIED INDUSTRIES
SIC 27
May 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	4,940	100.00	na	na
Managerial and Administrative Occupations	350	7.09	na	na
Financial Managers	30	0.61	5	19
Personnel, Training, and Labor Relations Managers	10	0.20	14	7
Marketing, Advertising, and Public Relations Managers	90	1.82	10	33
Industrial Production Managers	50	1.01	8	31
General Managers and Top Executives	160	3.24	7	67
All Other Managers and Administrators	10	0.20	na	na
Professional, Paraprofessional, and Technical Occupations	820	16.60	na	na
Purchasing Agents, except Wholesale, Retail, and Farm Products	10	0.20	21	4
Personnel, Training, and Labor Relations Specialists	10	0.20	30	3
Cost Estimators	30	0.61	11	20
Systems Analysts, Electronic Data Processing	10	0.20	4	6
Computer Programmers	20	0.40	19	5
Writers and Editors	260	5.26	15	31
Reporters and Correspondents	300	6.07	9	15
Photographers	50	1.01	15	12
Artists and Related Workers	60	1.21	10	18
Designers	60	1.21	10	25
All Other Professional, Paraprofessional, and Technical Workers	10	0.20	na	na
Sales and Related Occupations	410	8.30	na	na
First Line Supervisors and Manager/Supervisors, Sales and Related Occupations	70	1.42	19	15
Sales Agents, Advertising	190	3.85	9	24
Sales Representatives, except Scientific and Related Products and Services, and Retail	80	1.62	20	23
All Other Sales and Related Workers	70	1.42	na	na
Clerical and Administrative Support Occupations	1,140	23.08	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	60	1.21	13	25
Adjustment Clerks	60	1.21	7	9
Library Assistants and Bookmobile Drivers	10	0.20	6	3
Advertising Clerks	100	2.02	26	14
Proofreaders and Copy Markers	70	1.42	8	29
Secretaries	70	1.42	17	30
Receptionists and Information Clerks	50	1.01	11	33
Typists, Word Processing Equipment	60	1.21	34	12
Order Clerks	40	0.81	12	14
Bookkeeping, Accounting, and Auditing Clerks	120	2.43	13	52
Payroll and Timekeeping Clerks	10	0.20	19	4
Billing, Cost, and Rate Clerks	10	0.20	23	6
General Office Clerks	90	1.82	8	29
Mail Machine Operators, Preparation and Handling	60	1.21	15	11
Computer Operators, except Peripheral Equipment	10	0.20	17	5
Data Keyers, Composing	60	1.21	13	20
Switchboard Operators	20	0.40	15	7
Mail Clerks, except Mail Machine Operators and Postal Service	10	0.20	16	5
Messengers	10	0.20	45	3
Production, Planning, and Expediting Clerks	20	0.40	11	8
Stock Clerks, Stockroom, Warehouse, or Storage Yard	10	0.20	13	9
All Other Material Recording, Scheduling, and Distribution Workers	160	3.24	na	na
All Other Clerical and Administrative Support Workers	30	0.61	na	na
Service Occupations	60	1.21	na	na
Janitors and Cleaners, except Maids and Housekeeping Cleaners	50	1.01	11	19
All Other Service Workers	10	0.20	na	na

Occupation	Estimated Employ-ment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Production, Construction, Operating, Maintenance, and Material Handling Occupations	2,160	43.72	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	10	0.20	27	4
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	100	2.02	8	31
First Line Supervisors and Manager/Supervisors, Helpers, Laborers, and Material Movers, Hand	10	0.20	6	4
Machinery Maintenance Mechanics	10	0.20	14	4
Maintenance Repairers, General Utility	20	0.40	10	8
All Other Mechanics, Installers, and Repairers	10	0.20	na	na
Precision Compositors, Typesetters, and Arrangers	60	1.21	15	15
Job Printers	60	1.21	10	9
Precision Lithography and Photoengraving Workers	140	2.83	5	35
All Other Precision Printing Workers	10	0.20	na	na
Precision Detail Design Decorators and Painters	60	1.21	18	14
Offset Lithographic Press Setters and Setup Operators	180	3.64	7	35
Letterpress Setters and Setup Operators	70	1.42	31	12
Photoengraving and Lithographing Photographers	80	1.62	15	29
Screen Printing Machine Setters and Setup Operators	30	0.61	34	5
Bindery Machine Setters and Setup Operators	60	1.21	7	15
All Other Printing Related Setters and Setup Operators	10	0.20	na	na
Typesetting and Composing Machine Operators and Tenders	240	4.86	4	38
Printing Press Machine Operators and Tenders	240	4.86	14	32
Photoengraving and Lithographing Machine Operators and Tenders	20	0.40	2	3
Bindery Machine Operators	100	2.02	5	27
All Other Printing, Binding, and Related Machine Operators and Tenders	20	0.40	na	na
Cutting and Slicing Machine Operators and Tenders	20	0.40	14	10
Packaging and Filling Machine Operators and Tenders	10	0.20	16	3
All Other Machine Setters and Setup Operators	10	0.20	na	na
All Other Machine Operators and Tenders	40	0.81	na	na
All Other Hand Workers	20	0.40	na	na
Truck Drivers, Light, including Delivery and Route Workers	40	0.81	11	19
Driver/Sales Workers	10	0.20	37	4
Industrial Truck and Tractor Operators	20	0.40	1	3
Machine Feeders and Offbearers	240	4.86	24	10
Freight, Stock, and Material Movers, Hand	50	1.01	13	10
Hand Packers and Packagers	120	2.43	8	13
All Other Helpers, Laborers, and Material Movers, Hand	40	0.81	na	na

105d

CHEMICALS AND ALLIED PRODUCTS
SIC 28

This major industry group includes establishments producing basic chemicals, and establishments manufacturing products by predominantly chemical processes.

Employment in this industry has been on a slow decline since 1978, losing 400 workers by 1986 which represented just over 30 percent of the industry. Employment is currently at a level of 900 workers.

In 1986, total wages paid to employees of the chemical and allied products industry totaled $19.9 million. This equates to an average annual wage of $22,476 per worker.

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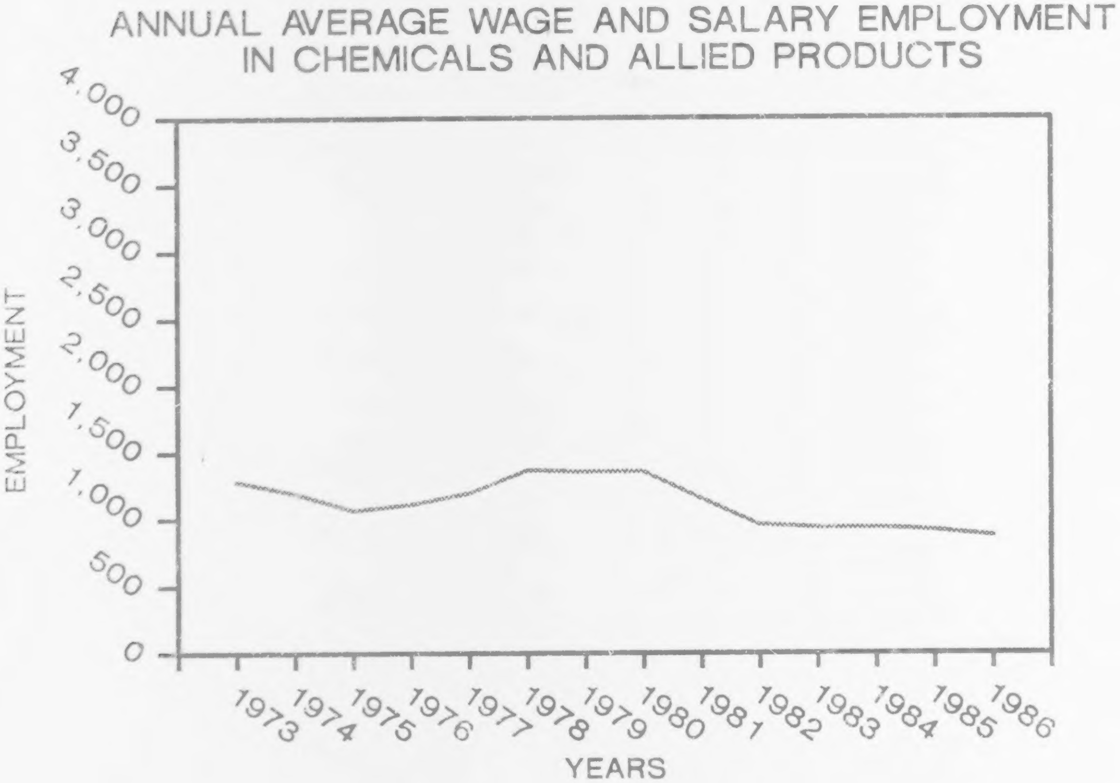
Figure 15



Chemicals and Allied Products
SIC 28
June 1986

Five Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Hand Packers and Packagers......................	80	8.70
First Line Supervisors and Manager/Supervisors, Production and Operating Workers.............	50	5.43
General Managers and Top Executives............	50	5.43
Maintenance Repairers, General Utility..........	50	5.43
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders................	40	4.35
Total.......................	270	29.35

Six Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives............	50	67
First Line Supervisors and Manager/Supervisors, Production and Operating Workers.............	50	57
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders................	40	48
Secretaries....................................	30	43
Industrial Production Managers.................	20	33
Marketing, Advertising, and Public Relations Managers..................................	30	33

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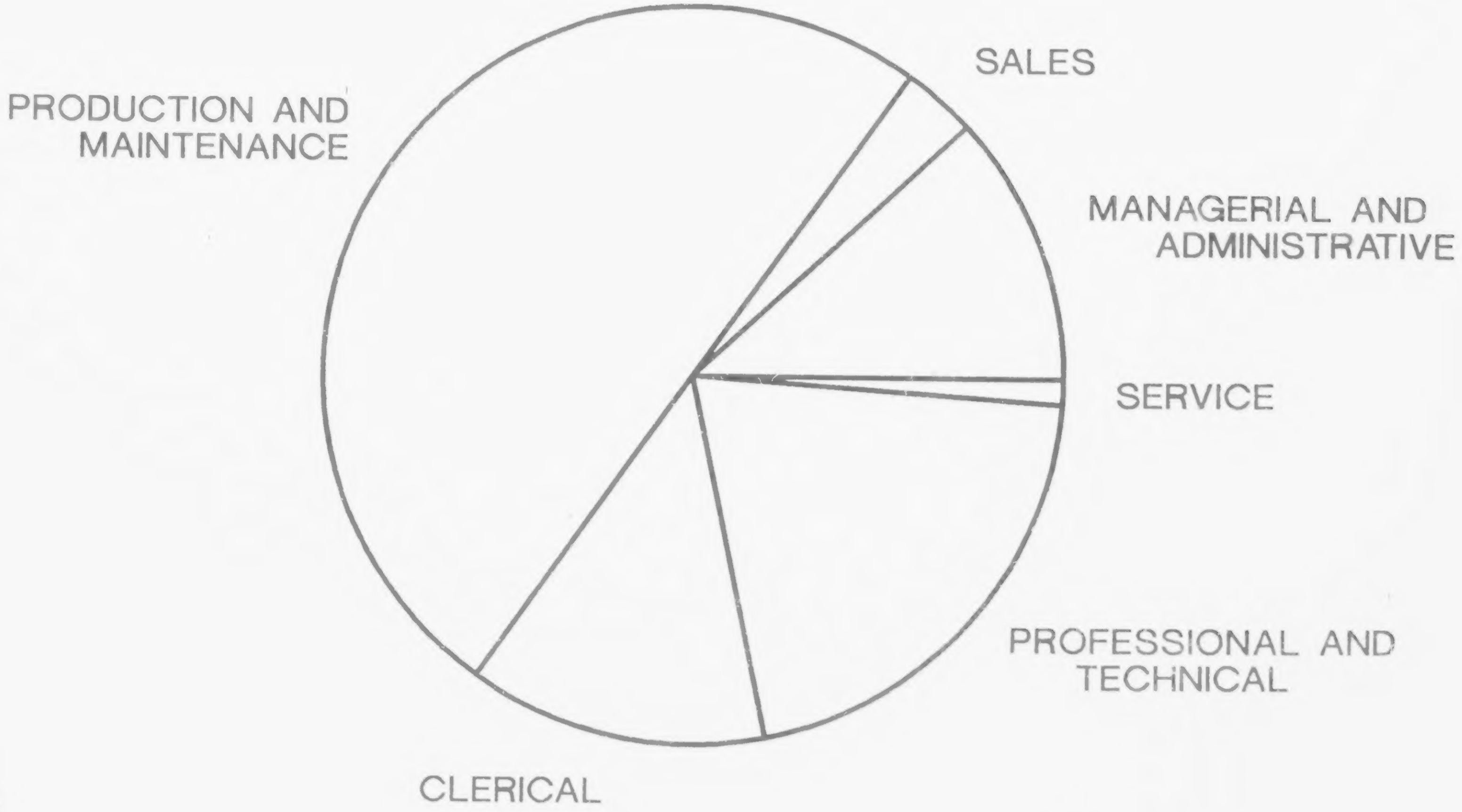
Figure 16

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT
IN CHEMICALS AND ALLIED PRODUCTS



CHEMICALS AND ALLIED PRODUCTS
SIC 28
June 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	920	100.00	na	na
Managerial and Administrative Occupations	110	11.96	na	na
Financial Managers	10	1.09	14	14
Marketing, Advertising, and Public Relations Managers	30	3.26	3	33
Industrial Production Managers	20	2.17	10	33
General Managers and Top Executives	50	5.43	14	67
Professional, Paraprofessional, and Technical Occupations	190	20.65	na	na
Accountants and Auditors	10	1.09	15	19
Purchasing Agents, except Wholesale, Retail, and Farm Products	10	1.09	15	14
Chemical Engineers	10	1.09	14	14
All Other Engineers	10	1.09	na	na
Chemists, except Biochemists	20	2.17	13	19
Biological Scientists	30	3.26	9	14
Chemical Technicians and Technologists, except Health	30	3.26	14	19
Physical and Life Science Technicians and Technologists	60	6.52	na	na
All Other Professional, Paraprofessional, and Technical Workers	10	1.09	na	na
Sales and Related Occupations	30	3.26	na	na
Sales Representatives, Scientific and Related Products and Services, except Retail	10	1.09	5	24
Sales Representatives, except Scientific and Related Products and Services, and Retail	20	2.17	28	14
Clerical and Administrative Support Occupations	120	13.04	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	10	1.09	17	19
Secretaries	30	3.26	3	43
Bookkeeping, Accounting, and Auditing Clerks	10	1.09	13	29
General Office Clerks	20	2.17	18	29
Traffic, Shipping, and Receiving Clerks	30	3.26	2	29
All Other Material Recording, Scheduling, and Distributing Workers	10	1.09	na	na
All Other Clerical and Administrative Support Occupations	10	1.09	na	na
Service Occupations	10	1.09	na	na
Production, Construction, Operating, Maintenance, and Material Handling Occupations	460	50.00	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	10	1.09	13	14
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	50	5.43	10	57
Inspectors, Testers, and Related Occupations	10	1.09	na	na
Maintenance Repairers, General Utility	50	5.43	10	29
All Other Mechanics, Installers, and Repairers	30	3.26	na	na
Construction Trades Workers	10	1.09	na	na
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders	40	4.35	13	48
All Other Machine Setters and Setup Operators	40	4.35	na	na
All Other Machine Operators and Tenders	80	8.70	na	na
Hand Workers	10	1.09	na	na
Plant and System Operators	10	1.09	na	na
Truck Drivers, Heavy or Tractor Trailer	10	1.09	23	14
All Other Transportation and Material Moving Equipment Operators	10	1.09	na	na
Hand Packers and Packagers	80	8.70	na	19
All Other Helpers, Laborers, and Material Movers, Hand	20	2.17	na	na

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RUBBER AND MISCELLANEOUS PLASTICS PRODUCTS
SIC 30

This major industry group includes establishments manufacturing rubber products such as tires, rubber footwear, mechanical rubber goods, heels and soles, flooring, and rubber sundries from natural, synthetic, or reclaimed rubber, gutta, percha, balata, or gutta siak.

Since 1973 employment in this industry has been bouncing back and forth between 3,900 and 4,300 until 1986 when employment reached a low of 3,650 workers. The 1982 high of 4,300 workers compared with the 1986 low of 3,650 workers represents a 15 percent employment decline during this four-year period.

In 1986, total wages paid to employees of the rubber and miscellaneous plastics products industry totaled $66.3 million. This equates to an average annual wage of $18,177 per worker.

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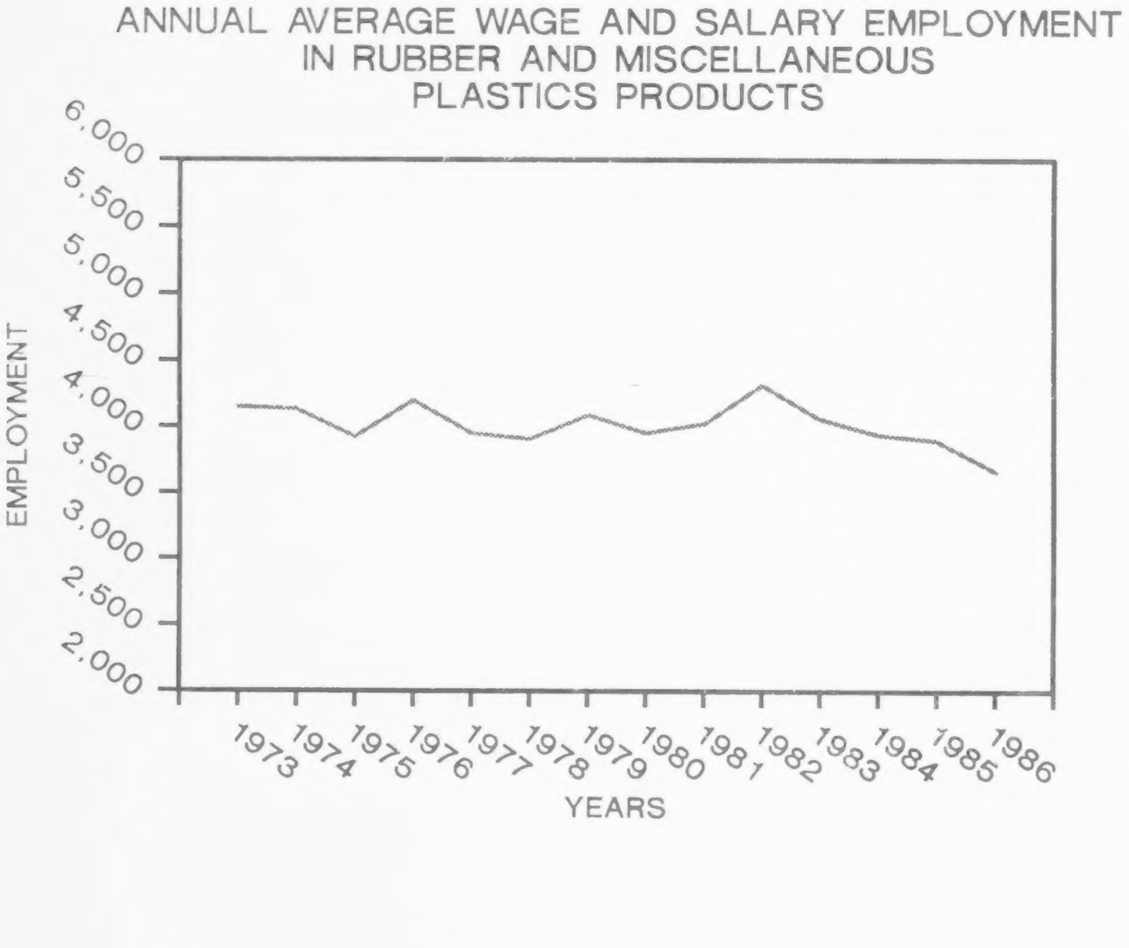
Figure 17



Rubber and Miscellaneous Plastics Products
SIC 30
June 1986

Eleven Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Plastic Molding and Casting Machine Operators and Tenders	450	11.87
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	370	9.76
Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders	130	3.43
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	120	3.17
Hand Packers and Packagers	100	2.64
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	90	2.37
Industrial Truck and Tractor Operators	80	2.11
Machine Feeders and Offbearers	80	2.11
Cutters and Trimmers, Hand	70	1.85
Freight, Stock, and Material Movers, Hand	70	1.85
Plastic Molding and Casting Machine Setters and Setup Operators	70	1.85
Total	1,630	43.01

Ten Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	50	78
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	120	70
Traffic, Shipping, and Receiving Clerks	30	52
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	370	48
General Office Clerks	30	48
Industrial Production Managers	30	44
Plastic Molding and Casting Machine Operators and Tenders	450	44
Secretaries	40	44
Janitors and Cleaners, except Maids and Housekeeping Cleaners	30	41
Payroll and Timekeeping Clerks	20	41

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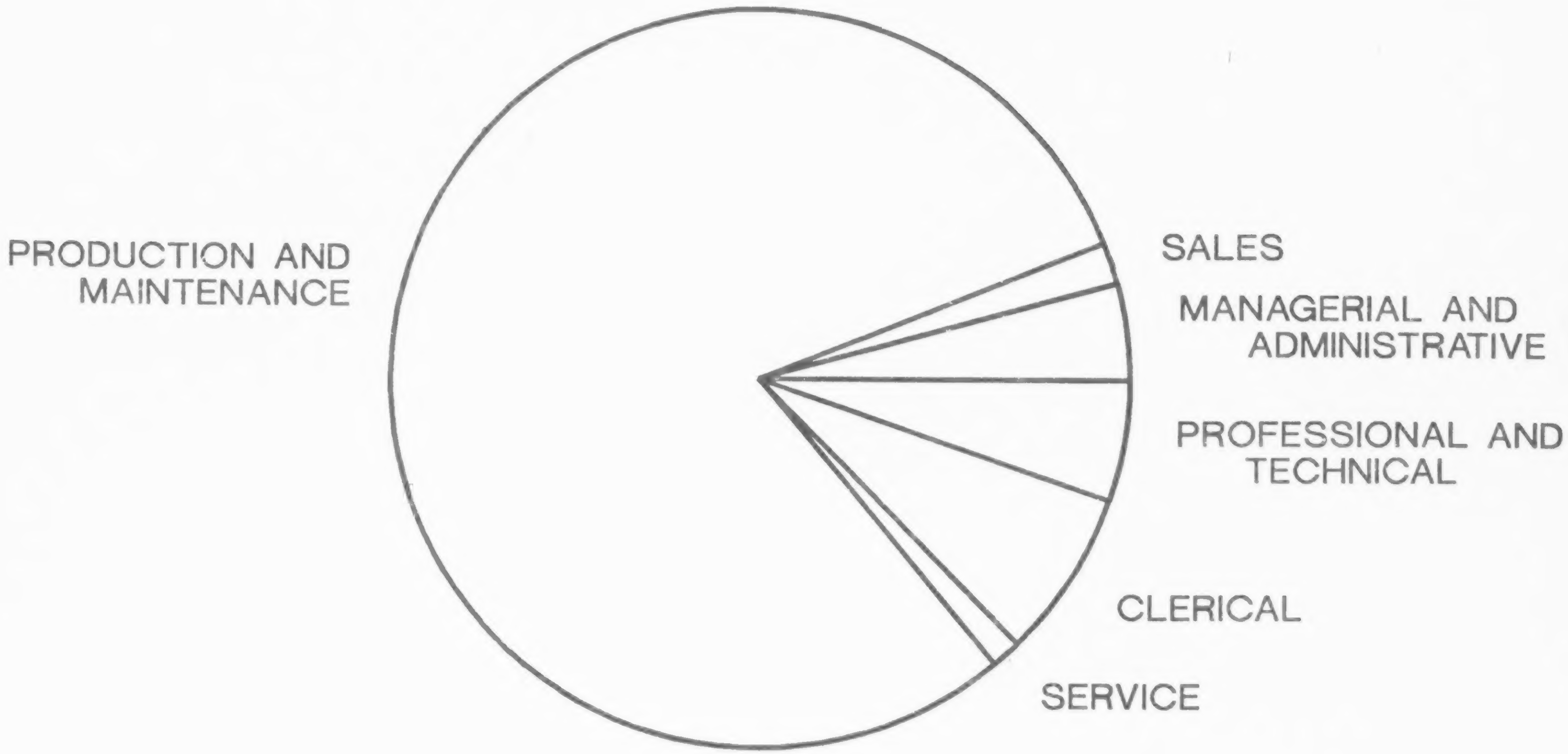
Figure 18

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN RUBBER AND MISCELLANEOUS PLASTICS PRODUCTS



RUBBER AND MISCELLANEOUS PLASTICS PRODUCTS
SIC 30
June 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	3,790	100.00	na	na
Managerial and Administrative Occupations	160	4.22	na	na
Financial Managers	10	0.26	14	26
Personnel, Training, and Labor Relations Managers	10	0.26	11	26
Purchasing Managers	10	0.26	14	22
Marketing, Advertising, and Public Relations Managers	10	0.26	25	15
Engineering, Mathematical, and Natural Sciences Managers	20	0.53	9	26
Industrial Production Managers	30	0.79	9	44
General Managers and Top Executives	50	1.32	7	78
All Other Managers and Administrators	20	0.53	na	na
Professional, Paraprofessional, and Technical Occupations	200	5.28	na	na
Accountants and Auditors	40	1.06	22	26
Purchasing Agents, except Wholesale, Retail, and Farm Products	10	0.26	9	26
Chemical Engineers	10	0.26	14	11
Industrial Engineers, except Safety	20	0.53	13	22
Mechanical Engineers	10	0.26	15	22
All Other Engineers	10	0.26	na	na
Industrial Engineering Technicians and Technologists	10	0.26	27	11
Drafters	10	0.26	35	15
All Other Engineering and Related Technicians and Technologists	40	1.06	na	na
Physical and Life Science Technicians and Technologists	10	0.26	na	na
Computer Programmers	10	0.26	19	11
All Other Professional, Paraprofessional, and Technical Workers	20	0.53	na	na
Sales and Related Occupations	70	1.85	na	na
Sales Representatives, except Scientific and Related Products and Services, and Retail	30	0.79	10	33
All Other Sales and Related Workers	40	1.06	na	na
Clerical and Administrative Support Occupations	280	7.39	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	20	0.53	26	22
Adjustment Clerks	10	0.26	6	15
Secretaries	40	1.06	9	44
Procurement Clerks	10	0.26	19	15
Bookkeeping, Accounting, and Auditing Clerks	20	0.53	20	37
Payroll and Timekeeping Clerks	20	0.53	5	41
Billing, Cost, and Rate Clerks	10	0.26	17	26
General Office Clerks	30	0.79	11	48
Computer Operators	10	0.26	10	11
Data Entry Keyers	10	0.26	22	11
Switchboard Operators	10	0.26	9	30
Production, Planning, and Expediting Clerks	40	1.06	7	30
Stock Clerks, Stockroom, Warehouse, or Storage Yard	20	0.53	24	19
Traffic, Shipping, and Receiving Clerks	30	0.79	8	52
Service Occupations	50	1.32	na	na
Janitors and Cleaners, except Maids and Housekeeping Cleaners	30	0.79	8	41
All Other Service Workers	20	0.53	na	na
Production, Construction, Operating, Maintenance, and Material Handling Occupations	3,030	79.95	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	20	0.53	20	22
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	120	3.17	5	70
First Line Supervisors and Manager/Supervisors, Transportation and Material Moving Machine and Vehicle Occupations	10	0.26	7	15
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance, and Related	20	0.53	na	na

SIC 30 (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	90	2.37	5	30
Machinery Maintenance Mechanics	60	1.58	3	30
Machinery Maintenance Workers	10	0.26	42	11
Maintenance Repairers, General Utility	50	1.32	11	30
All Other Mechanics, Installers, and Repairers	10	0.26	na	na
Carpenters	10	0.26	11	15
Electricians	30	0.79	9	22
Plumbers, Pipefitters, and Steamfitters	10	0.26	14	11
Tool and Die Makers	10	0.26	22	11
Machinists	30	0.79	32	26
All Other Precision Workers	40	1.06	na	na
Extruding and Drawing Machine Setters and Setup Operators, Metal and Plastic	10	0.26	36	11
Combination Machine Tool Operators and Tenders, Metal and Plastic	40	1.06	20	11
Plastic Molding and Casting Machine Setters and Setup Operators	70	1.85	21	19
Plastic Molding and Casting Machine Operators and Tenders	450	11.87	20	44
Cutting and Slicing Machine Operators and Tenders	30	0.79	19	11
Coating, Painting, and Spraying Machine Operators and Tenders	20	0.53	19	15
Cementing and Gluing Machine Operators and Tenders	40	1.06	18	11
Cleaning, Washing, and Pickling Equipment Operators and Tenders	20	0.53	18	11
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders	20	0.53	13	22
Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders	130	3.43	3	22
Packaging and Filling Machine Operators and Tenders	40	1.06	30	15
All Other Machine Setters and Setup Operators	120	3.17	na	na
All Other Machine Operators and Tenders	340	8.97	na	na
Cutters and Trimmers, Hand	70	1.85	19	37
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	370	9.76	10	48
All Other Hand Workers	330	8.71	na	na
Plant and System Operators	30	0.79	na	na
Truck Drivers, Heavy or Tractor Trailer	20	0.53	15	33
Industrial Truck and Tractor Operators	80	2.11	4	11
Machine Feeders and Offbearers	80	2.11	17	15
Freight, Stock, and Material Movers, Hand	70	1.85	10	26
Hand Packers and Packagers	100	2.64	16	22
All Other Helpers, Laborers, and Material Movers, Hand	30	0.79	na	na

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LEATHER AND LEATHER PRODUCTS
SIC 31

This major industry group includes establishments engaged in tanning, currying, and finishing hides and skins, and establishments manufacturing finished leather and artificial leather products, and some similar products made of other materials.

Employment in this industry declined by 12 percent between 1973 and 1975, but then recovered and remained above 20,000 workers through 1983. The industry had then reached its turning point, with employment plummeting to 12,300 workers by 1986, a decline of 40 percent.

In 1986, total wages paid to employers of the leather and leather products industry totaled $162.7 million. This equates to an average annual wage of $13,200 per worker.

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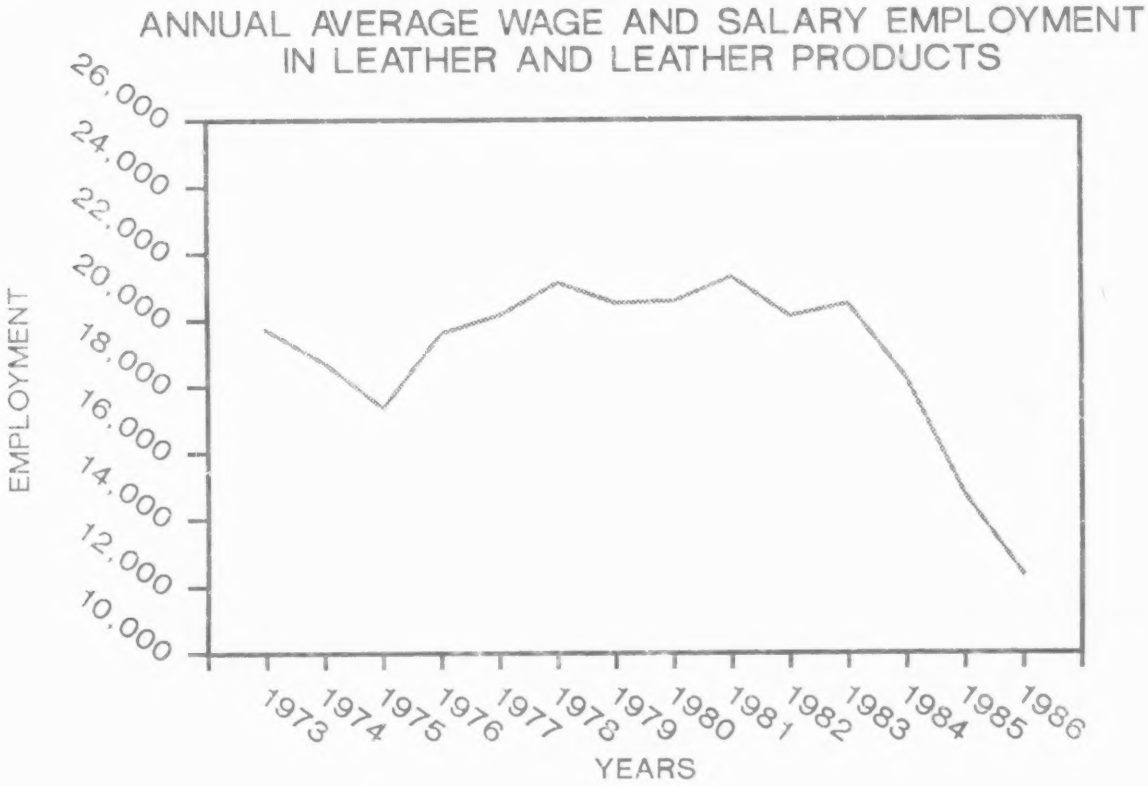
Figure 19



Leather and Leather Products
SIC 31
April 1986

Ten Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Shoe Sewing Machine Operators and Tenders	2,380	18.98
Sewers, Hand	970	7.74
Shoe and Leather Workers and Repairers, Precision	880	7.02
Cementing and Gluing Machine Operators and Tenders	540	4.31
Cutting and Slicing Machine Operators and Tenders	490	3.91
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	450	3.59
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	310	2.47
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	300	2.39
Hand Packers and Packagers	260	2.07
Machine Feeders and Offbearers	260	2.07
Total	6,840	54.55

Ten Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	90	83
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	300	66
Traffic, Shipping, and Receiving Clerks	190	63
Payroll and Timekeeping Clerks	80	61
Shoe Sewing Machine Operators and Tenders	2,380	61
Cementing and Gluing Machine Operators and Tenders	540	59
Cutting and Slicing Machine Operators and Tenders	490	51
Hand Packers and Packagers	260	51
Maintenance Repairers, General Utility	90	51
Janitors and Cleaners, except Maids and Housekeeping Cleaners	80	49

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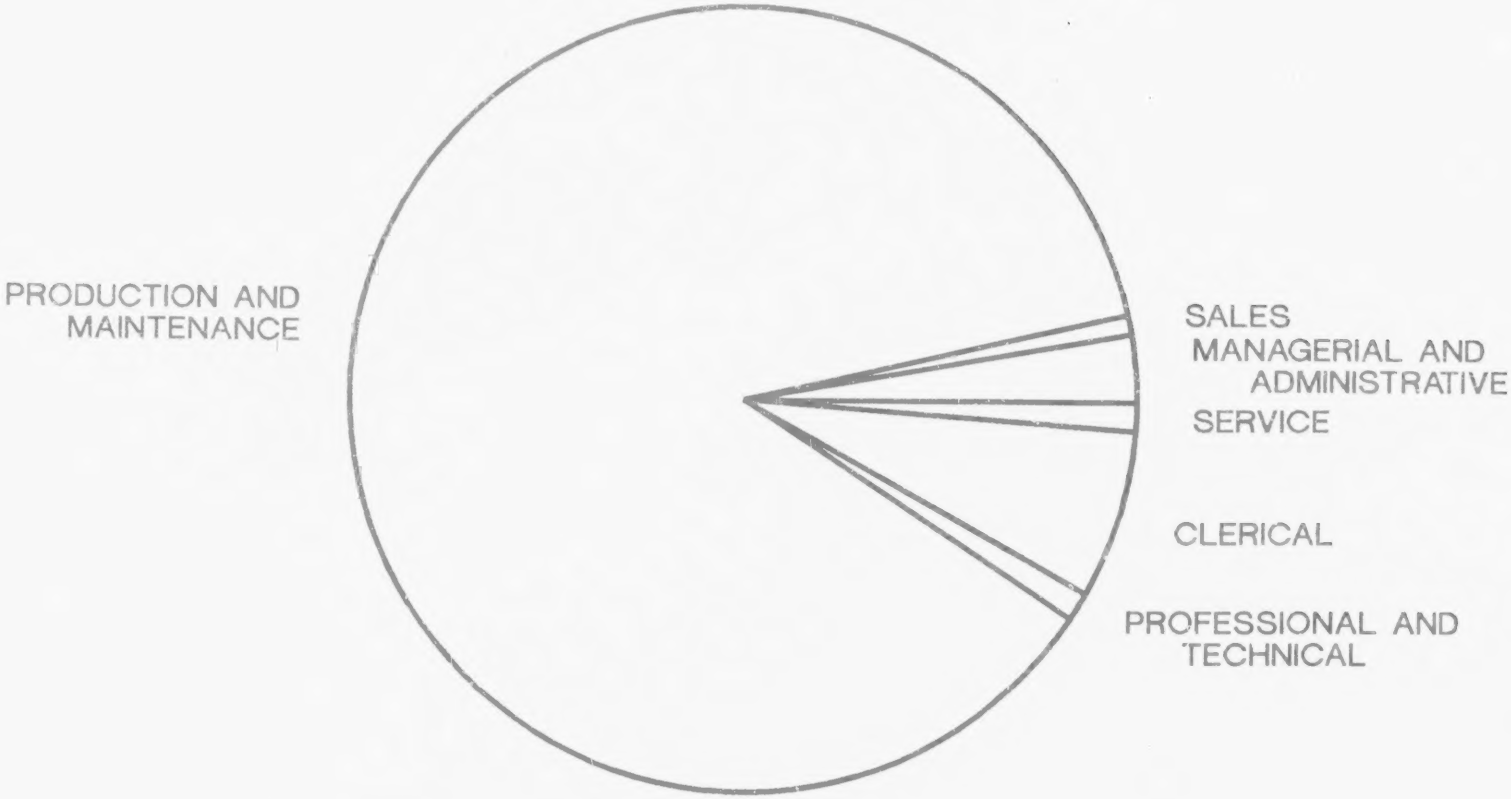
Figure 20

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN LEATHER AND LEATHER PRODUCTS



LEATHER AND LEATHER PRODUCTS
SIC 31
APRIL 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	12,540	100.00	na	na
Managerial and Administrative Occupations	350	2.79	na	na
Financial Managers	30	0.24	9	37
Personnel, Training, and Labor Relations Managers	10	0.08	16	17
Purchasing Managers	10	0.08	12	22
Marketing, Advertising, and Public Relations Managers	10	0.08	17	17
Administrative Services Managers	10	0.08	44	7
Engineering, Mathematical, and Natural Sciences Managers	10	0.08	27	10
Industrial Production Managers	50	0.40	8	37
General Managers and Top Executives	90	0.72	6	83
All Other Managers and Administrators	130	1.04	na	na
Professional, Paraprofessional, and Technical Occupations	150	1.20	na	na
Accountants and Auditors	20	0.16	15	17
Purchasing Agents, except Wholesale, Retail, and Farm Products	20	0.16	12	29
Personnel, Training, and Labor Relations Specialists	10	0.08	14	15
Cost Estimators	10	0.08	12	7
Industrial Engineers, except Safety	20	0.16	9	22
Mechanical Engineers	10	0.08	15	7
Industrial Engineering Technicians and Technologists	10	0.08	18	10
Systems Analysts, Electronic Data Processing	10	0.08	5	7
Computer Programmers	10	0.08	11	12
Health Practitioners, Technologists, Technicians, and Related Occupations	10	0.08	16	12
Designers, except Interior Designers	20	0.16	13	22
Sales and Related Occupations	100	0.80	na	na
First Line Supervisors and Manager/Supervisors, Sales and Related Occupations	10	0.08	25	10
Sales Representatives, except Scientific and Related Products and Services, and Retail	60	0.48	11	29
Salespersons, Retail	30	0.24	31	10
Clerical and Administrative Support Occupations	870	6.94	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	40	0.32	11	32
Adjustment Clerks	30	0.24	8	12
Secretaries	40	0.32	9	29
Receptionists and Information Clerks	10	0.08	12	15
Typists	10	0.08	21	15
Personnel Clerks, except Payroll and Timekeeping	20	0.16	7	17
Order Clerks, Materials, Merchandise, and Service	40	0.32	9	27
Procurement Clerks	20	0.16	9	12
Bookkeeping, Accounting, and Auditing Clerks	50	0.40	7	44
Payroll and Timekeeping Clerks	80	0.64	5	61
Billing, Cost, and Rate Clerks	30	0.24	13	24
General Office Clerks	60	0.48	11	44
Billing, Posting, and Calculating Machine Operators	10	0.08	26	10
Computer Operators	10	0.08	23	15
Data Entry Keyers, except Composing	30	0.24	14	17
Switchboard Operators	20	0.16	13	27
Production, Planning, and Expediting Clerks	50	0.40	14	29
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	10	0.08	13	10
Stock Clerks, Stockroom, Warehouse, or Storage Yard	30	0.24	13	24
Traffic, Shipping, and Receiving Clerks	190	1.52	6	63
All Other Material Recording, Scheduling, and Distributing Workers	30	0.24	na	na
All Other Clerical and Administrative Support Workers	60	0.48	na	na
Service Occupations	150	1.20	na	na
First Line Supervisors and Manager/Supervisors, Service	30	0.24	4	15
Guards and Watch Guards	40	0.32	11	27
Janitors and Cleaners, except Maids and Housekeeping Cleaners	80	0.64	6	49

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Production, Construction, Operating, Maintenance, and Material Handling Occupations	10,920	87.08	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	20	0.16	7	27
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	300	2.39	6	66
First Line Supervisors and Manager/Supervisors, Transportation and Material Moving	20	0.16	71	15
First Line Supervisors and Manager/Supervisors, Helpers, Laborers, and Material Movers, Hand	50	0.40	19	27
Precision Inspectors, Testers, and Graders	30	0.24	2	7
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	310	2.47	8	46
Machinery Maintenance Mechanics, Sewing Machines	70	0.56	8	41
All Other Machinery Maintenance Mechanics	20	0.16	na	na
Machinery Maintenance Workers	10	0.08	29	7
Maintenance Repairers, General Utility	90	0.72	12	51
All Other Mechanics, Installers, and Repairers	20	0.16	na	na
Construction and Extractive Workers, except Helpers	10	0.08	na	na
Machinists	20	0.16	5	10
Fabric and Apparel Patternmakers, and Layout Workers	40	0.32	24	22
Shoe and Leather Workers and Repairers, Precision	880	7.02	13	46
All Other Precision Textile, Apparel, and Furnishings Workers	20	0.16	na	na
All Other Precision Workers	20	0.16	na	na
Plastic Molding and Casting Machine Operators and Tenders	70	0.56	20	10
Metal and Plastic (Cut, Form, Fabricate, or Process) Machine Setters and Setup Operators	10	0.08	na	na
Printing Related Setters and Setup Operators	20	0.16	na	na
Textile Machine Operators and Tenders, Winding, Twisting, Knitting, Weaving and Cutting	90	0.72	22	15
Shoe Sewing Machine Operators and Tenders	2,380	18.98	5	61
Furnace, Kiln, Oven, Drier, or Kettle Operators and Tenders	60	0.48	76	10
Cutting and Slicing Machine Setters and Setup Operators	80	0.64	13	20
Cutting and Slicing Machine Operators and Tenders	490	3.91	6	51
Coating, Painting, and Spraying Machine Setters and Setup Operators	80	0.64	13	17
Coating, Painting, and Spraying Machine Operators and Tenders	70	0.56	11	22
Cementing and Gluing Machine Operators and Tenders	540	4.31	8	59
Cleaning, Washing, and Pickling Equipment Operators and Tenders	100	0.80	54	15
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders	140	1.12	13	20
Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders	50	0.40	12	12
Packaging and Filling Machine Operators and Tenders	30	0.24	21	15
All Other Machine Setters and Setup Operators	350	2.79	na	na
All Other Machine Operators and Tenders	620	4.94	na	na
Pressers, Hand	30	0.24	32	15
Sewers, Hand	970	7.74	9	41
Cutters and Trimmers, Hand	160	1.28	13	44
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	450	3.59	12	44
All Other Hand Workers	520	4.15	na	na
Plant and System Operators	10	0.08	na	na
Truck Drivers, Heavy or Tractor Trailer	10	0.08	8	15
Truck Drivers, Light, including Delivery and Route Workers	20	0.16	10	29
Industrial Truck and Tractor Operators	30	0.24	15	12
Conveyor Operators and Tenders	20	0.16	22	10
All Other Material Moving and Equipment Operators	40	0.32	na	na
Machine Feeders and Offbearers	260	2.07	36	7
Freight, Stock, and Material Movers, Hand	60	0.48	24	29
Hand Packers and Packagers	260	2.07	18	51
All Other Helpers, Laborers, and Material Movers, Hand	970	7.74	na	na

115d

STONE, CLAY, GLASS, AND CONCRETE PRODUCTS
SIC 32

This major group includes establishments engaged in manufacturing flat glass and other glass products, cement, structural clay products, pottery, concrete and gypsum products, cut stone, abrasive and asbestos products, etc., from materials taken principally from the earth in the form of stone, clay, and sand.

Employment in this industry registered a slow decline between 1973 and 1983, losing 375 workers and reaching a low of just under 1,000 employees. However, the industry has recovered, showing a 47 percent gain in employment between 1983 and 1986, ending this period with a high of nearly 1,500 workers.

In 1986, total wages paid to employees of the stone, clay, glass, and concrete products industry totaled $29.5 million. This equates to an average annual wage of $20,245 per worker.

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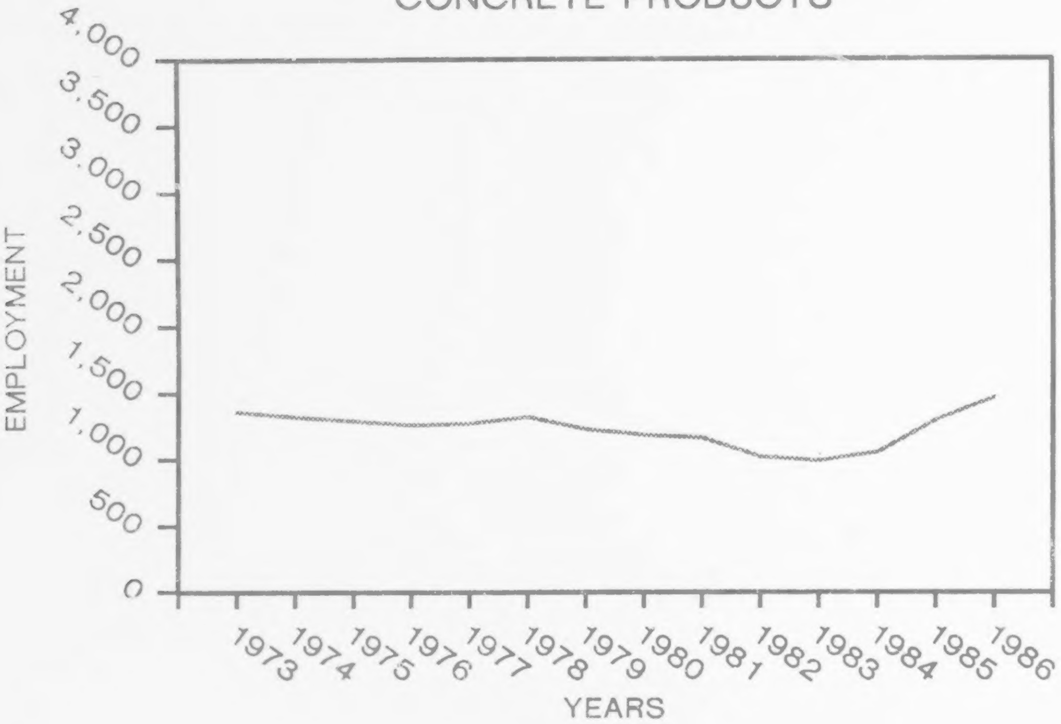
Figure 21

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN STONE, CLAY, GLASS, AND CONCRETE PRODUCTS



Stone, Clay, Glass, and Concrete Products
SIC 32
May 1986

Eight Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Truck Drivers, Heavy or Tractor Trailer.........	270	18.49
Precision Molders, Shapers, Casters, and Carvers, except Jewelry and Foundry...........	80	5.48
General Managers and Top Executives.............	60	4.11
First Line Supervisors and Manager/Supervisors, Production and Operating Workers.............	60	4.11
Concrete and Terrazzo Finishers.................	60	4.11
Bookkeeping, Accounting, and Auditing Clerks....	50	3.42
Machinery Maintenance Mechanics.................	40	2.74
Molders and Casters, Hand.......................	40	2.74
Total.......................	660	45.21

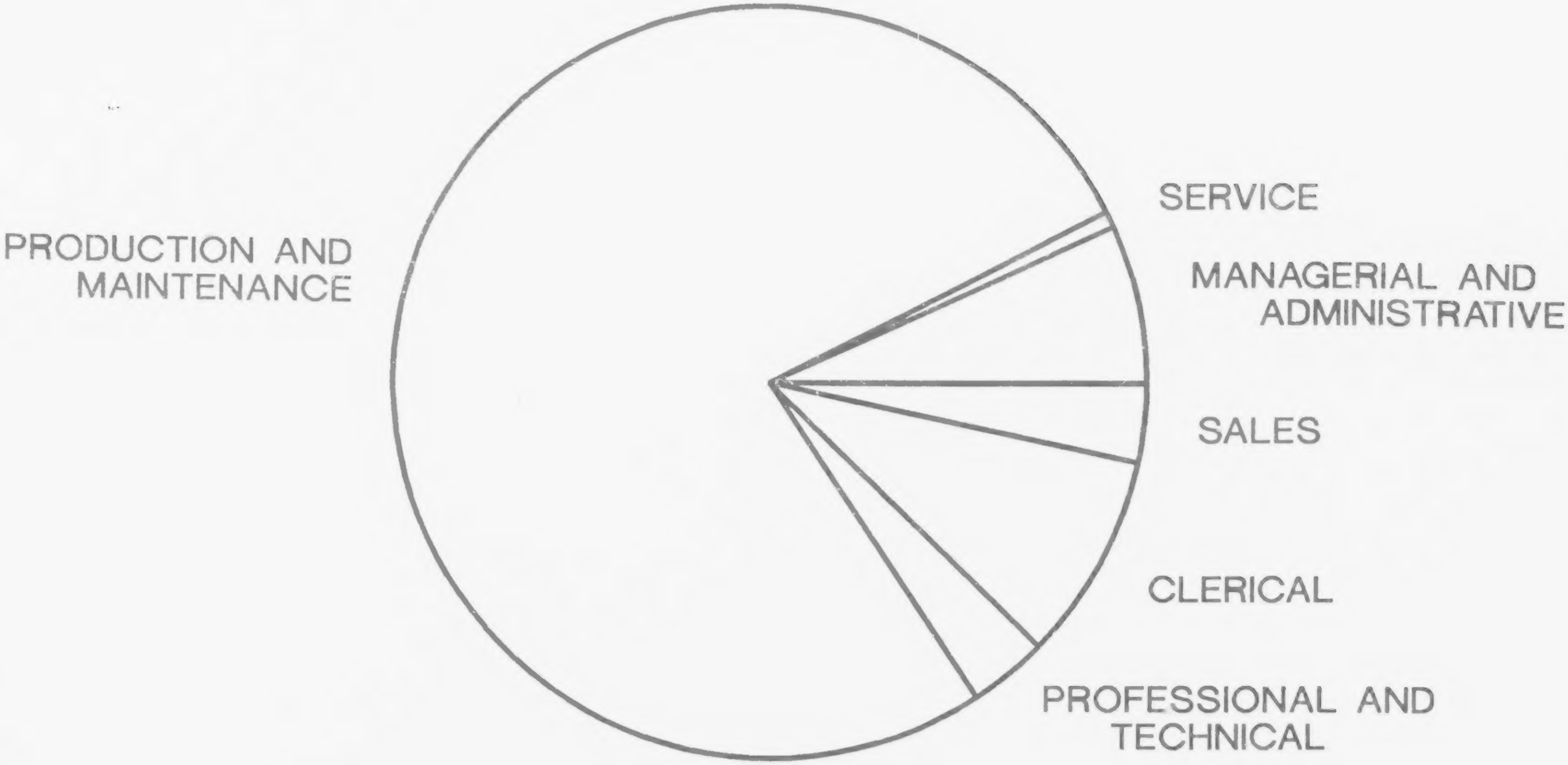
Ten Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
Truck Drivers, Heavy or Tractor Trailer.........	270	63
General Managers and Top Executives.............	60	52
Bookkeeping, Accounting, and Auditing Clerks....	50	44
First Line Supervisors and Manager/Supervisors, Production and Operating Workers.............	60	35
Industrial Production Managers..................	30	31
Dispatchers, except Police, Fire, and Ambulance.	30	31
Precision Molders, Shapers, Casters, and Carvers, except Jewelry and Foundry...........	80	26
Sales Representatives, except Scientific and Related Products and Services, and Retail.....	30	24
Secretaries.....................................	20	24
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders.................	30	24

130d

Figure 22

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN STONE, CLAY, GLASS, AND CONCRETE PRODUCTS



STONE, CLAY, GLASS, AND CONCRETE PRODUCTS
SIC 32
May 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	1,460	100.00	na	na
Managerial and Administrative Occupations	100	6.85	na	na
Personnel, Training, and Labor Relations Managers	10	0.68	26	6
Industrial Production Managers	30	2.05	11	31
General Managers and Top Executives	60	4.11	6	52
Professional, Paraprofessional, and Technical Occupations	50	3.42	na	na
Accountants and Auditors	10	0.68	16	13
Purchasing Agents, except Wholesale, Retail and Farm Products	10	0.68	21	9
All Other Management Support Workers	10	0.68	na	na
Engineers and Related Occupations	10	0.68	na	na
Natural Scientists and Related Workers	10	0.68	na	na
Sales and Related Occupations	50	3.42	na	na
Sales Representatives, except Scientific and Related Products and Services, and Retail	30	2.05	17	24
Salespersons, Retail	10	0.68	24	6
All Other Sales Workers	10	0.68	na	na
Clerical and Administrative Support Occupations	130	8.90	na	na
Secretaries	20	1.37	10	24
Bookkeeping, Accounting, and Auditing Clerks	50	3.42	8	44
General Office Clerks	10	0.68	15	17
Dispatchers, except Police, Fire, and Ambulance	30	2.05	8	31
Traffic, Shipping, and Receiving Clerks	10	0.68	21	9
All Other Clerical and Administrative Support Workers	10	0.68	na	na
Service Occupations	10	0.68	na	na
Janitors and Cleaners, except Maids and Housekeeping Cleaners	10	0.68	25	9
Production, Construction, Operating, Maintenance, and Material Handling Occupations	1,120	76.71	na	na
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	60	4.11	12	35
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	20	1.37	6	7
Machinery Maintenance Mechanics	40	2.74	6	17
Maintenance Repairers, General Utility	20	1.37	6	13
Automotive Mechanics	10	0.68	17	9
Bus and Truck Mechanics, and Diesel Engine Specialists	20	1.37	12	20
All Other Mechanics, Installers, and Repairers	10	0.68	na	na
Carpenters	20	1.37	9	9
Concrete and Terrazzo Finishers	60	4.11	43	9
Paving, Surfacing, and Tamping Equipment Operators	10	0.68	33	6
All Other Construction and Extractive Workers, except Helpers	10	0.68	na	na
Precision Molders, Shapers, Casters, and Carvers, except Jewelry and Foundry	80	5.48	16	26
Furnace, Kiln, Oven, Drier, or Kettle Operators and Tenders	30	2.05	5	15
Crushing, Grinding, Mixing, and Blending Machine Operators and Tenders	30	2.05	11	24
Extruding, Forming, Pressing, and Compacting Machine Setters and Setup Operators	10	0.68	23	6
Extruding, Forming, Pressing, and Compacting Machine Operators and Tenders	10	0.68	14	7
All Other Machine Setters and Setup Operators	20	1.37	na	na
All Other Machine Operators and Tenders	30	2.05	na	na
Welders and Cutters	10	0.68	19	11
Molders and Casters, Hand	40	2.74	22	15
Painting, Coating, and Decorating Workers, Hand	20	1.37	14	9
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	10	0.68	15	7
All Other Hand Workers	20	1.37	na	na
Plant and System Operators	20	1.37	11	13
Truck Drivers, Heavy or Tractor Trailer	270	18.49	6	63

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Truck Drivers, Light, including Delivery and Route Workers	20	1.37	19	15
Grader, Dozer, and Scraper Operators	20	1.37	16	13
Industrial Truck and Tractor Operators	30	2.05	11	17
Operating Engineers	10	0.68	30	6
Construction Trades and Extractive Worker Helpers	10	0.68	21	11
Machine Feeders and Offbearers	30	2.05	3	7
Freight, Stock, and Material Movers, Hand	20	1.37	18	13
Hand Packers and Packagers	20	1.37	6	11
All Other Helpers, Laborers, and Material Movers, Hand	80	5.48	na	na

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PRIMARY METAL INDUSTRIES
SIC 33

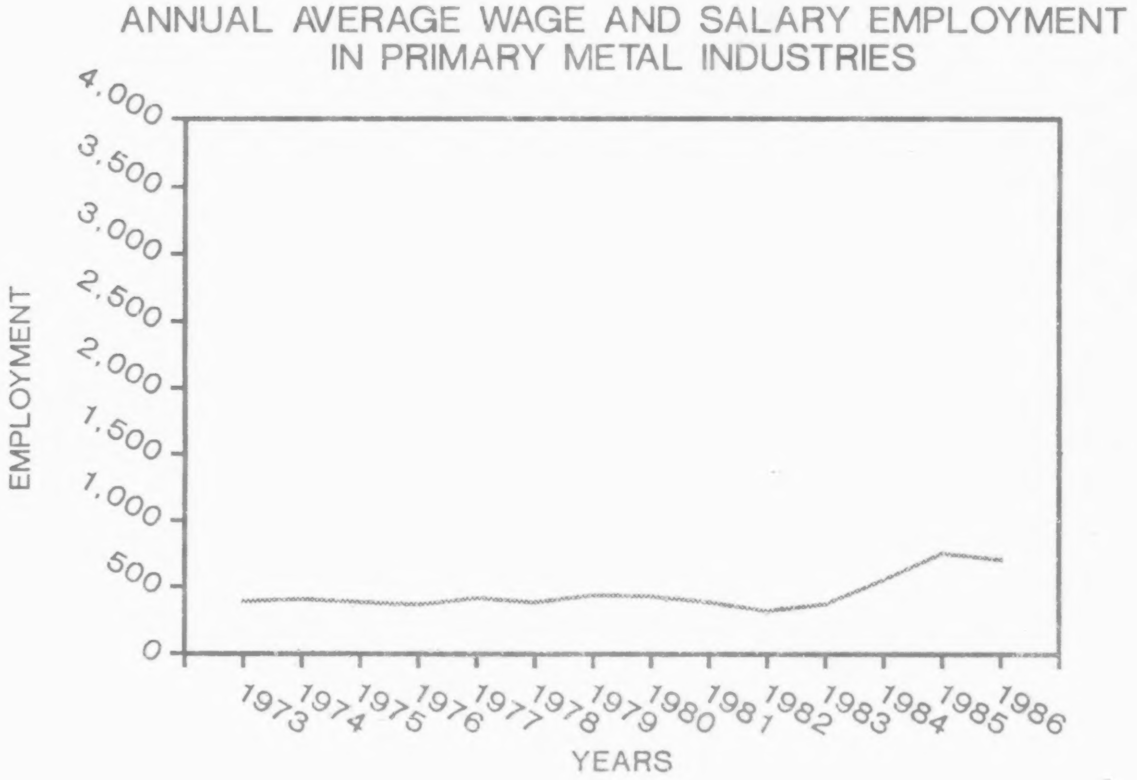
This major industry group includes establishments engaged in the smelting and refining of ferrous and nonferrous metals from ore, pig, or scrap; in the rolling, drawing, and alloying of ferrous and nonferrous metals; in the manufacture of castings and other basic products of ferrous and nonferrous metals; and in the manufacture of nails, spikes, and insulated wire and cable.

For most of the 10-year period from 1973 to 1983, employment in this industry hovered around the 400 mark. Then suddenly employment levels increased by 86 percent between 1983 and 1986, ending this period with 700 workers.

In 1986, total wages paid to employees of the primary metal industries totaled $15 million. This equates to an average annual wage of $21,532 per worker.

119d

Figure 23



Primary Metal Industries
SIC 33
April 1986

Three Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Machinists	50	7.35
Precision Foundry Mold and Core Makers	30	4.41
Grinding, Lapping, and Buffing Machine Tool Setters and Setup Operators, Metal and Plastic	30	4.41
Total	110	16.18

Seven Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	10	86
Precision Foundry Mold and Core Makers	30	57
Grinding, Lapping, and Buffing Machine Tool Setters and Setup Operators, Metal and Plastic	30	57
Industrial Production Managers	10	43
Secretaries	10	43
Machinists	50	43
Furnace Operators and Tenders	10	43

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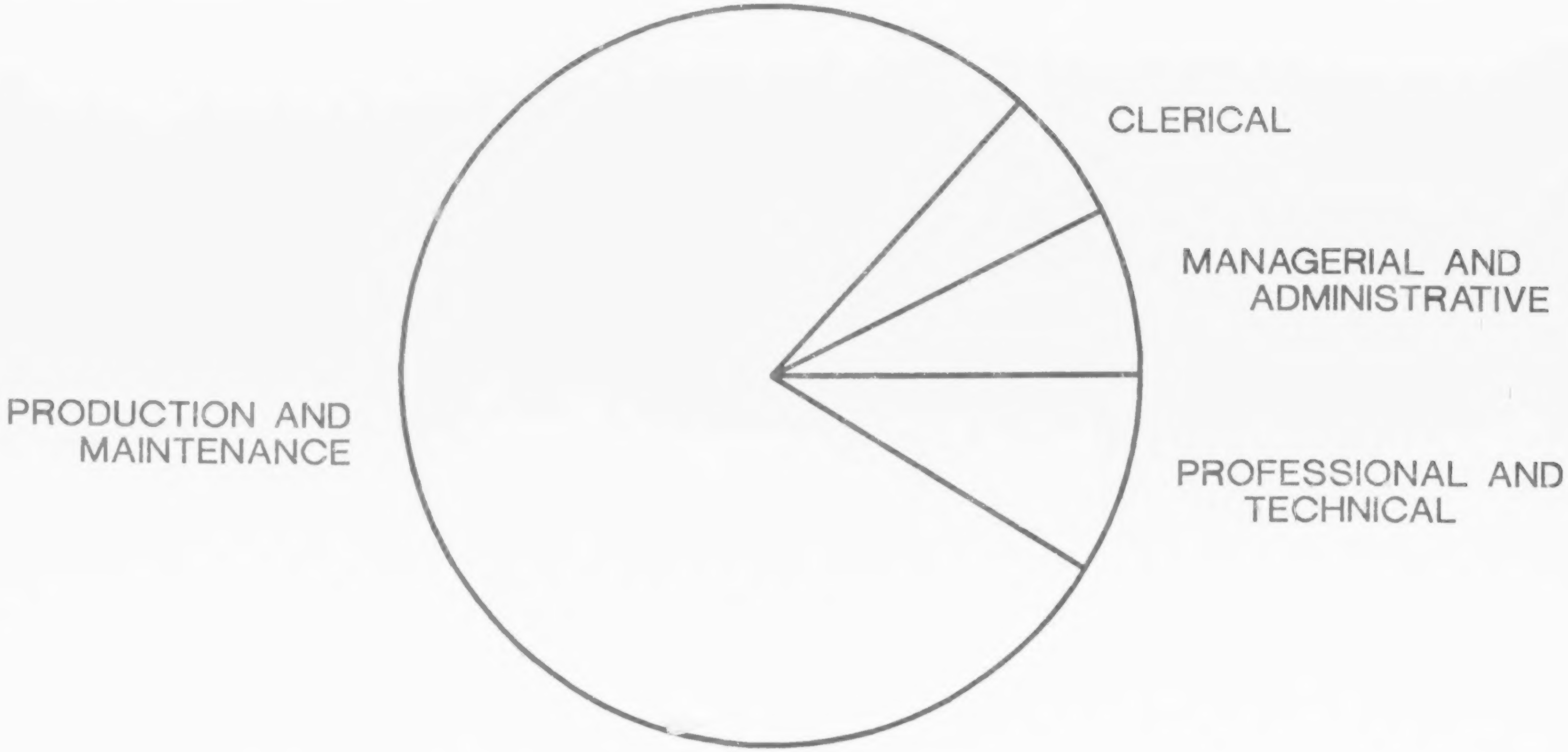
Figure 24

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT
IN PRIMARY METAL INDUSTRIES



PRIMARY METAL INDUSTRIES
SIC 33
April 1986

Occupation	Estimated Employ-ment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	680	100.00	na	na
Managerial and Administrative Occupations	50	7.35	na	na
Industrial Production Managers	10	1.47	10	43
General Managers and Top Executives	10	1.47	3	86
All Other Managers and Administrators	30	4.41	na	na
Professional, Paraprofessional, and Technical Occupations	60	8.82	na	na
Management Support Occupations	10	1.47	na	na
Engineers	30	4.41	na	na
Engineering and Related Technicians and Technologists	10	1.47	na	na
All Other Professional, Paraprofessional, and Technical Workers	10	1.47	na	na
Clerical and Administrative Support Occupations	40	5.88	na	na
Secretaries	10	1.47	na	43
Material Recording, Scheduling, Dispatching, and Distributing Occupations	20	2.94	na	na
All Other Clerical and Administrative Support Workers	10	1.47	na	na
Production, Construction, Operating, Maintenance, and Material Handling Occupations	530	77.94	na	na
First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance, and Related	20	2.94	na	na
Inspectors and Related Occupations	60	8.82	na	na
Mechanics, Installers, and Repairers	30	4.41	na	na
Construction Trades Workers	10	1.47	na	na
Machinists	50	7.35	2	43
Precision Foundry Mold and Core Makers	30	4.41	4	57
Grinding, Lapping, and Buffing Machine Tool Setters and Setup Operators, Metal and Plastic	30	4.41	2	57
Furnace Operators and Tenders	10	1.47	na	43
All Other Machine Setters and Setup Operators	80	11.76	na	na
All Other Machine Operators and Tenders	180	26.47	na	na
Hand Workers	10	1.47	na	na
Helpers, Laborers, and Material Movers, Hand	20	2.94	na	na

118d

Fabricated Metal Products, Except Machinery and Transportation Equipment
SIC 34

This major industry group includes establishments engaged in fabricating ferrous and nonferrous metal products such as metal cans, tinware, hand tools, cutlery, general hardware, nonelectric heating apparatus, fabricated structural metal products, metal forgings, metal stampings, and a variety of metal and wire products not elsewhere classified.

Employment in this industry increased by 38 percent between 1973 and 1980. However, 1980 was a turning point for this industry as employment has dropped by 33 percent between 1980 and 1986, ending at an employment low of nearly 2,900 workers.

In 1986, total wages paid to employees of the fabricated metal products industry totaled $58.8 million. This equates to an average annual wage of $20,680 per worker.

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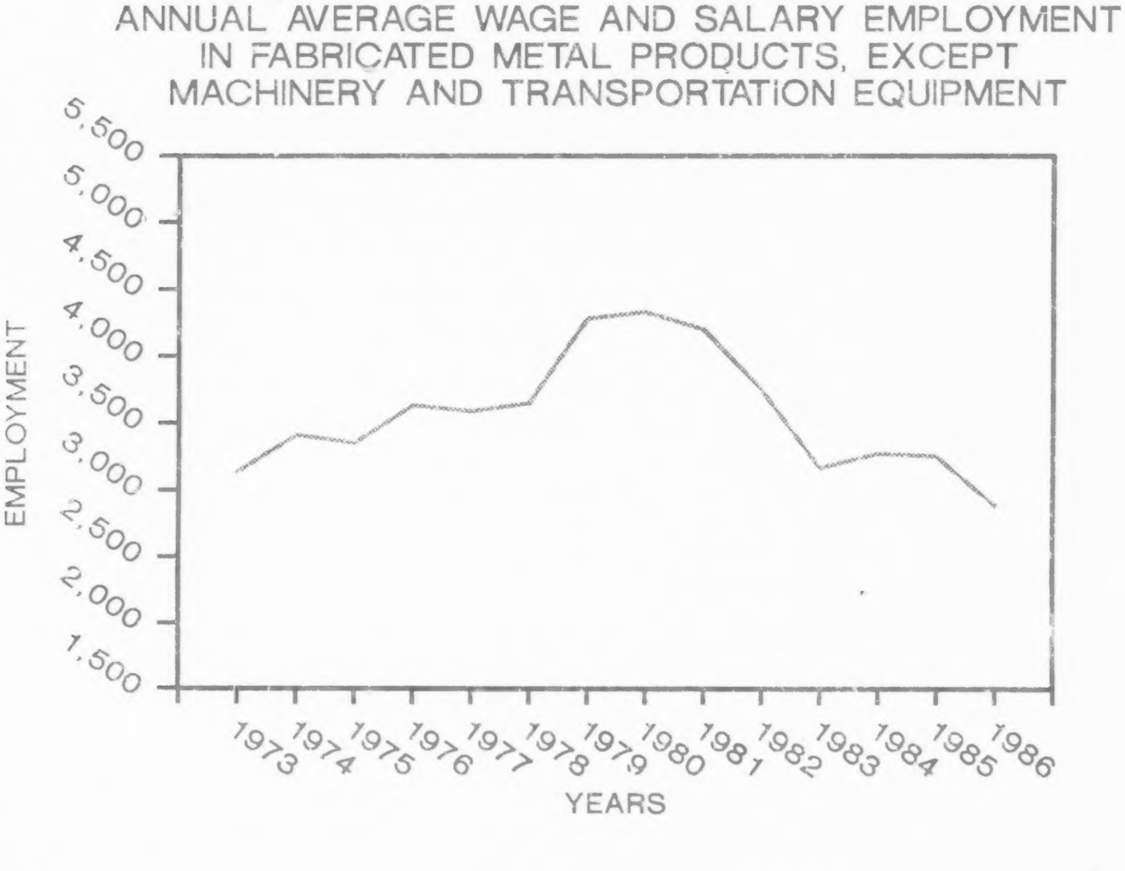
Figure 25



Fabricated Metal Products
SIC 34
June 1986

Twelve Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	190	6.64
Sheet Metal Workers	120	4.20
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	110	3.85
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	100	3.50
Lathe and Turning Machine Tool Setters and Setup Operators, Metal and Plastic	100	3.50
Metal Fabricators, Structural Metal Products	90	3.15
General Managers and Top Executives	80	2.80
Numerical Control Machine Tool Operators and Tenders, Metal and Plastic	80	2.80
Mechanical Engineers	60	2.10
Secretaries	60	2.10
Tool and Die Makers	60	2.10
Welders and Cutters	60	2.10
Total	1,110	38.81

Ten Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	80	70
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	110	49
Bookkeeping, Accounting, and Auditing Clerks	40	43
Secretaries	60	41
Industrial Production Managers	50	39
Financial Managers	30	33
Assemblers and Fabricators except Machine, Electrical, Electronic, and Precision	190	33
Welders and Cutters	60	30
General Office Clerks	30	29
Traffic, Shipping, and Receiving Clerks	30	29

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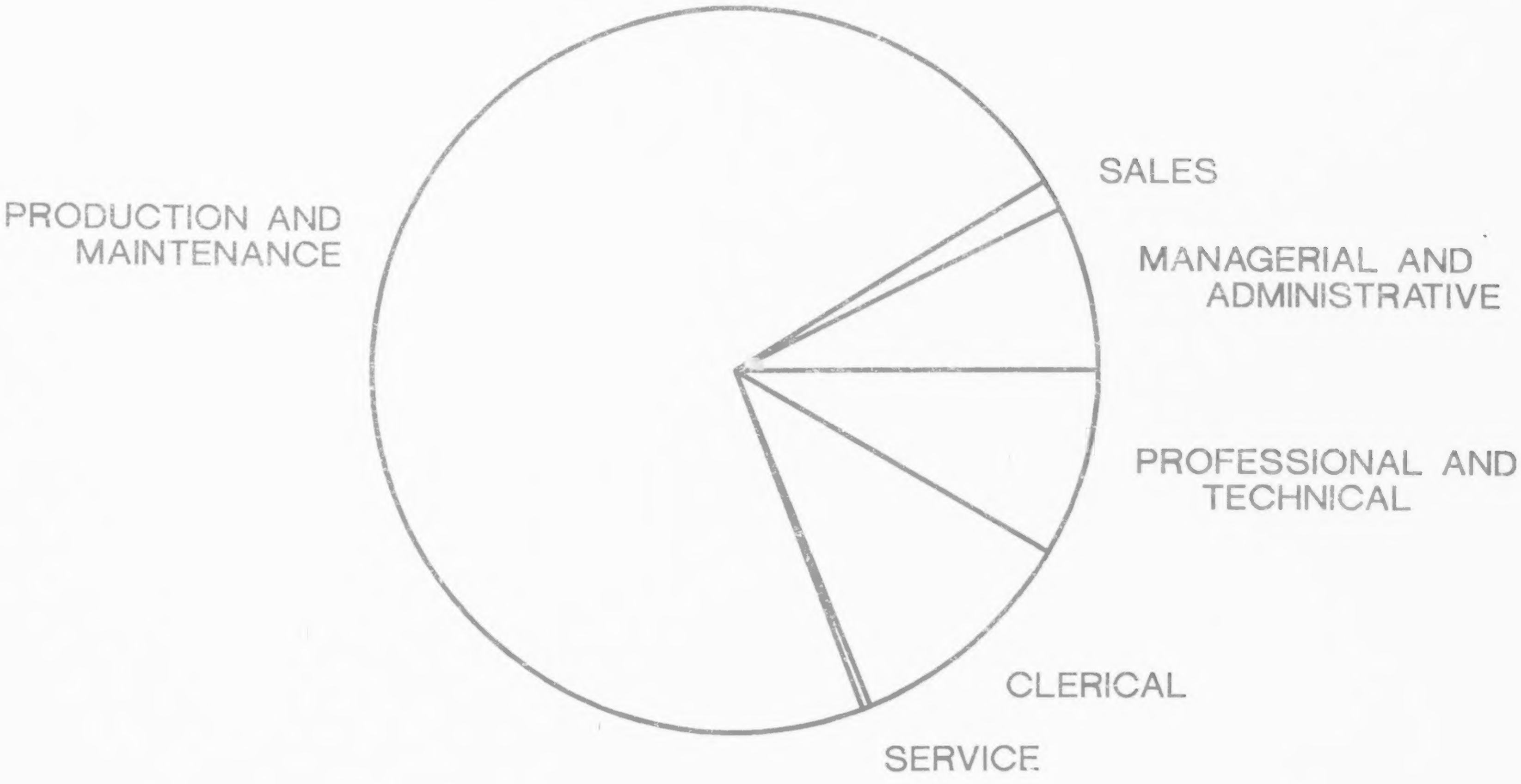
Figure 26

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND TRANSPORTATION EQUIPMENT



FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND TRANSPORTATION EQUIPMENT
SIC 34
June 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	2,860	100.00	na	na
Managerial and Administrative Occupations	210	7.34	na	na
Financial Managers	30	1.05	4	33
Purchasing Managers	10	0.35	4	7
Marketing, Advertising, and Public Relations Managers	10	0.35	3	7
Industrial Production Managers	50	1.75	4	39
General Managers and Top Executives	80	2.80	3	70
All Other Managers and Administrators	30	1.05	na	na
Professional, Paraprofessional, and Technical Occupations	240	8.39	na	na
Accountants and Auditors	10	0.35	5	17
Purchasing Agents, except Wholesale, Retail, and Farm Products	30	1.05	6	25
Cost Estimators	20	0.70	5	19
All Other Management Support Workers	20	0.70	na	na
Metallurgists and Metallurgical, Ceramic, and Materials Engineers	10	0.35	2	4
Civil Engineers, including Traffic	10	0.35	13	4
Industrial Engineers, except Safety	10	0.35	2	4
Mechanical Engineers	60	2.10	3	16
Drafters	50	1.75	4	25
All Other Engineering and Related Technicians and Technologists	10	0.35	na	na
Computer Progammers	10	0.35	4	7
Sales and Related Occupations	40	1.40	na	na
Sales Engineers	10	0.35	2	4
Sales Representatives, Scientific and Related Products and Services, except Retail	10	0.35	10	6
Sales Representatives, except Scientific and Related Products and Services, and Retail	20	0.70	10	19
Clerical and Administrative Support Occupations	300	10.49	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	20	0.70	1	9
Secretaries	60	2.10	4	41
Receptionists and Information Clerks	10	0.35	2	9
Bookkeeping, Accounting, and Auditing Clerks	40	1.40	5	43
Payroll and Timekeeping Clerks	10	0.35	4	6
General Office Clerks	30	1.05	8	29
Data Entry Keyers, except Composing	10	0.35	2	6
Switchboard Operators	10	0.35	2	9
Production, Planning, and Expediting Clerks	30	1.05	6	22
Stock Clerks, Stockroom, Warehouse, or Storage Yard	30	1.05	3	14
Traffic, Shipping, and Receiving Clerks	30	1.05	3	29
All Other Clerical and Administrative Support Workers	20	0.70	na	na
Service Occupations	10	0.35	na	na
Janitors and Cleaners, except Maids and Housekeeping Cleaners	10	0.35	2	13
Production, Construction, Operating, Maintenance, and Material Handling Occupations	2,060	72.03	na	na
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	110	3.85	2	49
Precision Inspectors, Testers, and Graders	10	0.35	6	7
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	100	3.50	na	10
Machinery Maintenance Mechanics	30	1.05	9	14
Maintenance Repairers, General Utility	50	1.75	23	28
Electricians	10	0.35	3	7
All Other Construction and Extractive Workers, except Helpers	40	1.40	na	na
Tool and Die Makers	60	2.10	2	19
Machinists	40	1.40	9	20
Tool Grinders, Filers, Sharpeners, and Other Precision Grinders	50	1.75	2	13
Pattern and Model Makers, Metal	40	1.40	na	4
Precision Layout Workers, Metal	40	1.40	8	10
Sheet Metal Workers	120	4.20	9	19

SIC 34 (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
All Other Precision Metal Workers	10	0.35	na	na
Sawing Machine Tool Setters and Setup Operators, Metal and Plastic	10	0.35	2	7
Lathe and Turning Machine Tool Setters and Setup Operators, Metal and Plastic	100	3.50	2	12
Drilling and Boring Machine Tool Setters and Setup Operators, Metal and Plastic	50	1.75	4	9
Grinding, Lapping, and Buffing Machine Tool Setters and Setup Operators, Metal and Plastic	50	1.75	2	7
Machine Tool Cutting Operators and Tenders, Metal and Plastic	20	0.70	2	4
Punch Machine Setters and Setup Operators, Metal and Plastic	20	0.70	15	9
Press and Press Brake Machine Setters and Setup Operators, Metal and Plastic	30	1.05	7	17
Shear and Slitter Machine Setters and Setup Operators, Metal and Plastic	20	0.70	7	14
Machine Forming Operators and Tenders, Metal and Plastic	30	1.05	13	9
Numerical Control Machine Tool Operators and Tenders, Metal and Plastic	80	2.80	4	4
Combination Machine Tool Setters and Setup Operators, Metal and Plastic	10	0.35	14	6
Combination Machine Tool Operators and Tenders, Metal and Plastic	20	0.70	3	7
Welding Machine Setters and Setup Operators	40	1.40	2	13
Welding Machine Operators and Tenders	20	0.70	13	10
Metal Fabricators, Structural Metal Products	90	3.15	7	19
All Other Metal and Plastic (Cut, Form, Fabricate or Process) Machine Setters and Setup Operators	80	2.80	na	na
All Other Metal and Plastic (Cut, Form, Fabricate or Process) Machine Operators and Tenders	100	3.50	na	na
Coating, Painting, and Spraying Machine Setters and Setup Operators	10	0.35	12	9
Coating, Painting, and Spraying Machine Operators and Tenders	40	1.40	3	12
Fitters, Structural Metal, Precision	40	1.40	2	7
Welders and Cutters	60	2.10	7	30
Grinding and Polishing Workers, Hand	20	0.70	14	10
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	190	6.64	5	33
All Other Hand Workers	30	1.05	na	na
Truck Drivers, Heavy or Tractor Trailer	10	0.35	2	7
Truck Drivers, Light, including Delivery and Route Workers	10	0.35	8	7
Crane and Tower Operators	10	0.35	1	6
Industrial Truck and Tractor Operators	10	0.35	2	6
Machine Feeders and Offbearers	20	0.70	3	4
Freight, Stock, and Material Movers, Hand	10	0.35	11	10
Hand Packers and Packagers	30	1.05	3	7
All Other Helpers, Laborers, and Material Movers, Hand	90	3.15	na	na

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MACHINERY, EXCEPT ELECTRICAL
SIC 35

This major industry group includes establishments engaged in manufacturing machinery and equipment, other than electrical equipment and transportation equipment.

This industry made great gains in employment between 1975 and 1980, adding over 2,000 workers, reflecting an employment increase of 87 percent and ending this period with 4,400 workers. However, since 1980, employment has been quite erratic, dropping to 3,700 in 1983 and increasing to 4,600 in 1985. Currently employment is experiencing another decline, dropping to 4,100 in 1986.

In 1986, total wages paid to employees of the machinery, except electrical, industry totaled $95.3 million. This equates to an average annual wage of $22,867 per worker.

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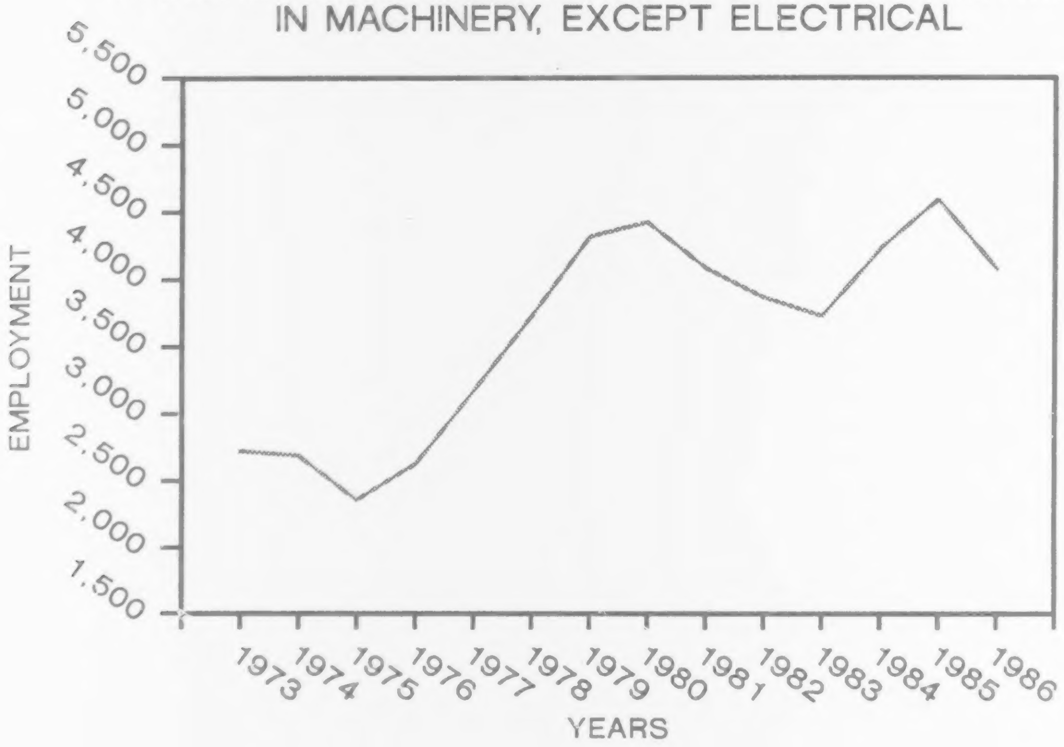
Figure 27

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN MACHINERY, EXCEPT ELECTRICAL



Machinery, except Electrical
SIC 35
June 1986

Eleven Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Machinists	590	14.15
Sheet Metal Workers	140	3.36
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	130	3.12
Tool and Die Makers	120	2.88
Numerical Control Machine Tool Operators and Tenders, Metal and Plastic	120	2.88
Welders and Cutters	120	2.88
Mechanical Engineers	110	2.64
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	110	2.64
Machine Builders and Other Precision Machine Assemblers	110	2.64
General Managers and Top Executives	90	2.16
Welding Machine Setters and Setup Operators	90	2.16
Total	1,730	41.49

Ten Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
Machinists	590	73
General Managers and Top Executives	90	68
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	130	49
Secretaries	80	43
Bookkeeping, Accounting, and Auditing Clerks	50	43
Industrial Production Managers	60	41
Purchasing Agents, except Wholesale, Retail, and Farm Products	50	39
Financial Managers	40	38
Drafters	80	36
Mechanical Engineers	110	31

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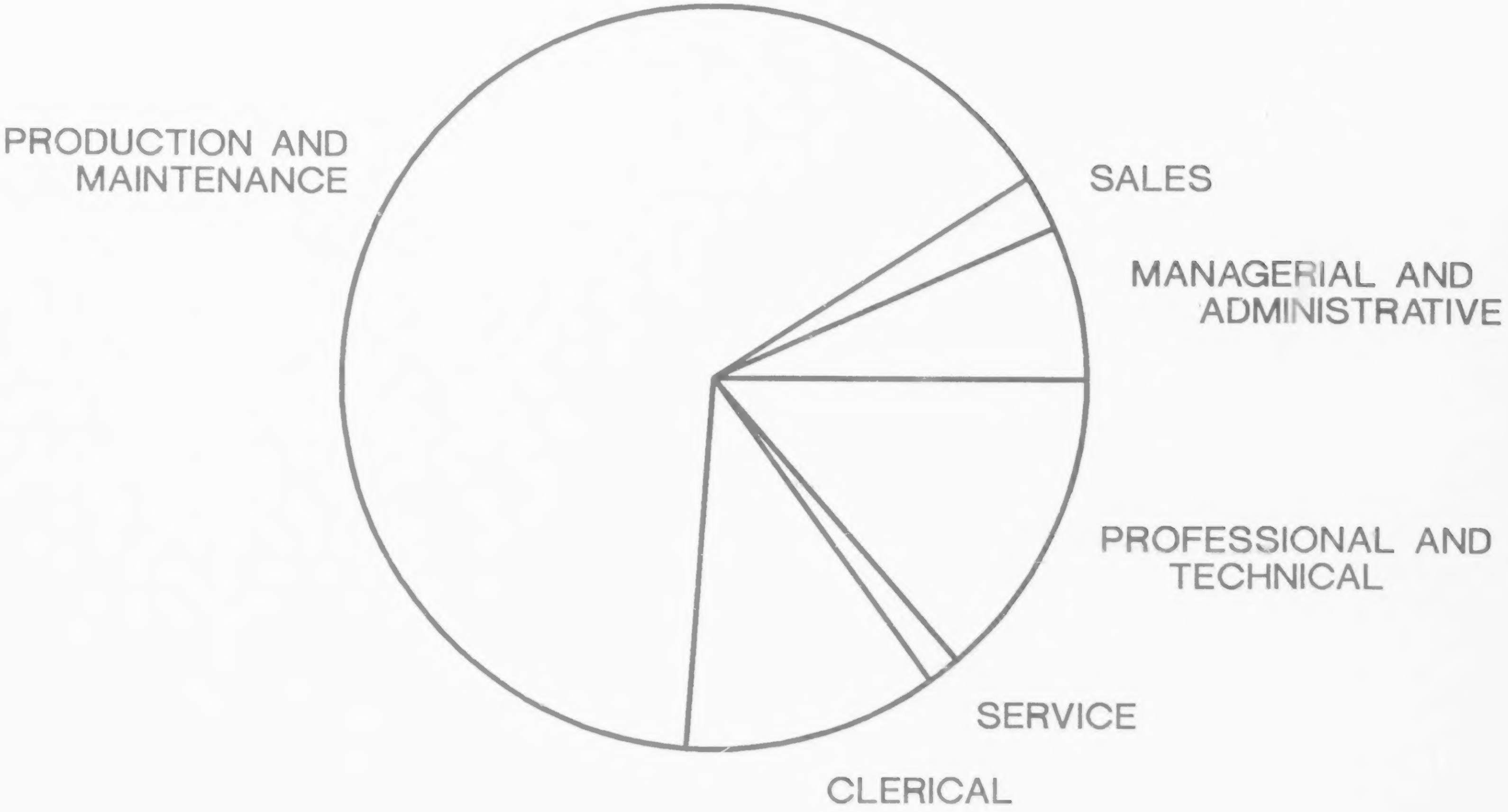
Figure 28

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN MACHINERY, EXCEPT ELECTRICAL



MACHINERY, EXCEPT ELECTRICAL
SIC 35
JUNE 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	4,170	100.00	na	na
Managerial and Administrative Occupations	280	6.71	na	na
Financial Managers	40	0.96	5	38
Personnel, Training, and Labor Relations Managers	10	0.24	1	9
Purchasing Managers	20	0.48	2	11
Marketing, Advertising, and Public Relations Managers	10	0.24	13	10
Engineering, Mathematical and Natural Sciences Managers	40	0.96	7	19
Industrial Production Managers	60	1.44	4	41
General Managers and Top Executives	90	2.16	4	68
All Other Managers and Administrators	10	0.24	3	6
Professional, Paraprofessional, and Technical Occupations	570	13.67	na	na
Accountants and Auditors	30	0.72	3	18
Purchasing Agents, except Wholesale, Retail, and Farm Products	50	1.20	5	39
Personnel, Training, and Labor Relations Specialists	10	0.24	3	4
Cost Estimators	20	0.48	6	21
All Other Management Support Workers	20	0.48	na	na
Electrical and Electronic Engineers	50	1.20	2	13
Industrial Engineers, except Safety	20	0.48	3	8
Mechanical Engineers	110	2.64	4	31
All Other Engineers	20	0.48	na	na
Electrical and Electronic Engineering Technicians and Technologists	50	1.20	2	8
Industrial Engineering Technicians and Technologists	20	0.48	na	4
Mechanical Engineering Technicians and Technologists	20	0.48	7	5
Drafters	80	1.92	6	36
All Other Engineering and Related Technicians and Technologists	10	0.24	na	na
Computer Programmers	20	0.48	8	13
Programmers, Numerical, Tool, and Process Control	20	0.48	8	9
All Other Professional, Paraprofessional, and Technical Workers	20	0.48	na	na
Sales and Related Occupations	100	2.40	na	na
Sales Engineers	30	0.72	12	13
Sales Representatives, Scientific and Related Products and Services, except Retail	20	0.48	17	10
Sales Representatives, except Scientific and Related Products and Services, and Retail	40	0.96	17	18
All Other Sales and Related Workers	10	0.24	na	na
Clerical and Administrative Support Occupations	460	11.03	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	30	0.72	6	21
Secretaries	80	1.92	5	43
Receptionists and Information Clerks	10	0.24	16	6
Typists	20	0.48	na	4
Order Clerks, Materials, Merchandise, and Service	20	0.48	12	14
Procurement Clerks	10	0.24	7	8
Bookkeeping, Accounting, and Auditing Clerks	50	1.20	5	43
Payroll and Timekeeping Clerks	10	0.24	7	13
Billing, Cost, and Rate Clerks	10	0.24	3	5
General Office Clerks	30	0.72	8	25
Computer Operators, except Peripheral Equipment	10	0.24	11	5
Switchboard Operators	10	0.24	2	8
Production, Planning, and Expediting Clerks	40	0.96	3	15
Stock Clerks, Stockroom, Warehouse, or Storage Yard	70	1.68	8	23
Traffic, Shipping, and Receiving Clerks	50	1.20	6	29
All Other Material Recording, Scheduling, and Distributing Workers	10	0.24	na	na
Service Occupations	60	1.44	na	na
Protective Service Workers	10	0.24	na	na
Janitors and Cleaners, except Maids and Housekeeping Cleaners	50	1.20	3	29

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Production, Construction, Operating, Maintenance, and Material Handling Occupations	2,700	64.75	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	10	0.24	9	8
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	130	3.12	3	49
First Line Supervisors and Manager/Supervisors, Helpers, Laborers, and Material Movers, Hand	10	0.24	11	4
Precision Inspectors, Testers, and Graders	40	0.96	7	21
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	110	2.64	9	18
Machinery Maintenance Mechanics	30	0.72	5	14
Maintenance Repairers, General Utility	20	0.48	9	15
Electrical and Electronic Equipment Mechanics, Installers, and Repairers	10	0.24	na	na
All Other Mechanics, Installers, and Repairers	10	0.24	na	na
Electricians	10	0.24	31	6
Painters and Paperhangers, Construction and Maintenance	10	0.24	32	4
Tool and Die Makers	120	2.88	7	20
Machinists	590	14.15	5	73
Tool Grinders, Filers, Sharpeners, and Other Precision Grinders	30	0.72	4	11
Sheet Metal Workers	140	3.36	14	9
Sawing Machine Tool Setters and Setup Operators, Metal and Plastic	10	0.24	26	4
Lathe and Turning Machine Tool Setters and Setup Operators, Metal and Plastic	50	1.20	5	20
Drilling and Boring Machine Tool Setters and Setup Operators, Metal and Plastic	40	0.96	14	15
Milling and Planing Machine Setters and Setup Operators, Metal and Plastic	50	1.20	5	11
Grinding, Lapping, and Buffing Machine Tool Setters and Setup Operators, Metal and Plastic	80	1.92	3	13
Machine Tool Cutting Operators and Tenders, Metal and Plastic	80	1.92	10	14
Punching Machine Setters and Setup Operators, Metal and Plastic	50	1.20	36	6
Machine Forming Operators and Tenders, Metal and Plastic	20	0.48	19	4
Numerical Control Machine Tool Operators and Tenders, Metal and Plastic	120	2.88	14	20
Combination Machine Tool Setters and Setup Operators, Metal and Plastic	20	0.48	22	6
Combination Machine Tool Operators and Tenders, Metal and Plastic	80	1.92	2	9
Welding Machine Setters and Setup Operators	90	2.16	35	14
Welding Machine Operators and Tenders	10	0.24	14	4
Heat Treating, Annealing, and Tempering Machine Operators and Tenders, Metal and Plastic	20	0.48	5	4
All Other Metal and Plastic (Cut, Form, Fabricate, or Process) Machine Setters and Setup Operators	30	0.72	na	na
All Other Metal and Plastic (Cut, Form, Fabricate, or Process) Machine Operators and Tenders	30	0.72	na	na
Coating, Painting, and Spraying Machine Setters and Setup Operators	10	0.24	41	4
Coating, Painting, and Spraying Machine Operators and Tenders	20	0.48	8	5
All Other Machine Setters and Setup Operators	10	0.24	na	na
All Other Machine Operators and Tenders	20	0.48	na	na
Machine Builders and Other Precision Machine Assemblers	110	2.64	5	15
Electrical and Electronic Equipment Assemblers, Precision	10	0.24	na	5
All Other Precision Assemblers	30	0.72	na	na
Machine Assemblers	20	0.48	20	4
Welders and Cutters	120	2.88	20	25
Grinding and Polishing Workers, Hand	70	1.68	8	20
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	40	0.96	7	16
All Other Hand Workers	70	1.68	na	na
Truck Drivers, Heavy or Tractor Trailer	10	0.24	na	5
Truck Drivers, Light, including Delivery and Route Workers	10	0.24	12	8
Industrial Truck and Tractor Operators	20	0.48	5	8
Freight, Stock, and Material Movers, Hand	10	0.24	na	na
Hand Packers and Packagers	20	0.48	33	6
All Other Helpers, Laborers, and Material Movers, Hand	50	1.20	na	na

ELECTRICAL AND ELECTRONIC MACHINERY, EQUIPMENT, AND SUPPLIES
SIC 36

This major industry group includes establishments engaged in manufacturing machinery, apparatus, and supplies for the generation, storage, transmission, transformation, and utilization of electrical energy.

Employment in this industry has been on a consistent climb since 1975, except for a mild decline between 1981 and 1982. Over this 11-year period, nearly 5,200 workers were added, reflecting an increase of 106 percent, and ending this period at 10,000 employees.

In 1986, total wages paid to employees of the electrical and electronic machinery industry total $200.0 million. This equates to an average annual wage of $19,981 per worker.

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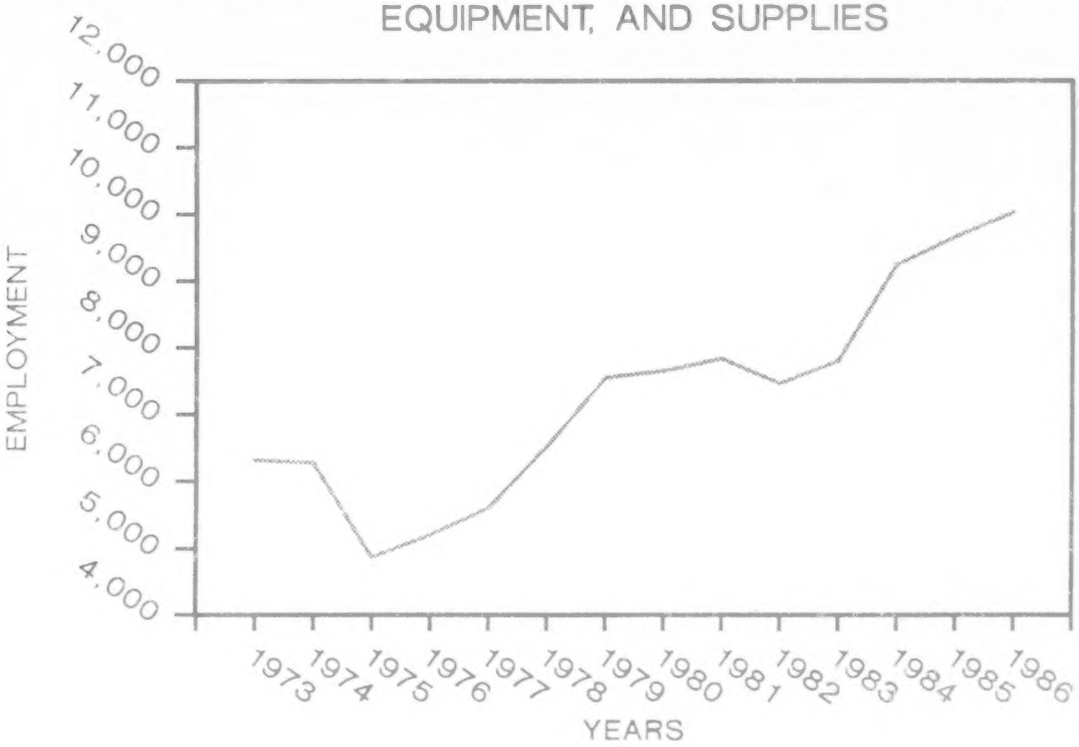
Figure 29

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN ELECTRICAL AND ELECTRONIC MACHINERY, EQUIPMENT, AND SUPPLIES



Electrical and Electronic Machinery, Equipment, and Supplies
SIC 36
June 1986

Ten Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Electrical and Electronic Assemblers	1,970	19.18
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	590	5.74
Electrical and Electronic Engineering Technicians and Technologists	530	5.16
Electrical and Electronic Equipment Assemblers, Precision	530	5.16
Electronic Semiconductor Processors	450	4.38
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	430	4.19
Electrical and Electronic Engineers	390	3.80
Precision Inspectors, Testers and Graders	380	3.70
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	300	2.92
Machinery Maintenance Mechanics	220	2.14
Total	5,790	56.38

Twelve Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	80	78
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	300	75
Industrial Production Managers	100	58
Purchasing Agents, except Wholesale, Retail, and Farm Products	100	48
Secretaries	80	48
Production, Planning, and Expediting Clerks	110	48
Mechanical Engineers	110	45
Traffic, Shipping, and Receiving Clerks	50	45
Bookkeeping, Accounting, and Auditing Clerks	50	43
Janitors and Cleaners, except Maids and Housekeeping Cleaners	50	43
Machinists	190	43
Electrical and Electronic Assemblers	1,970	43

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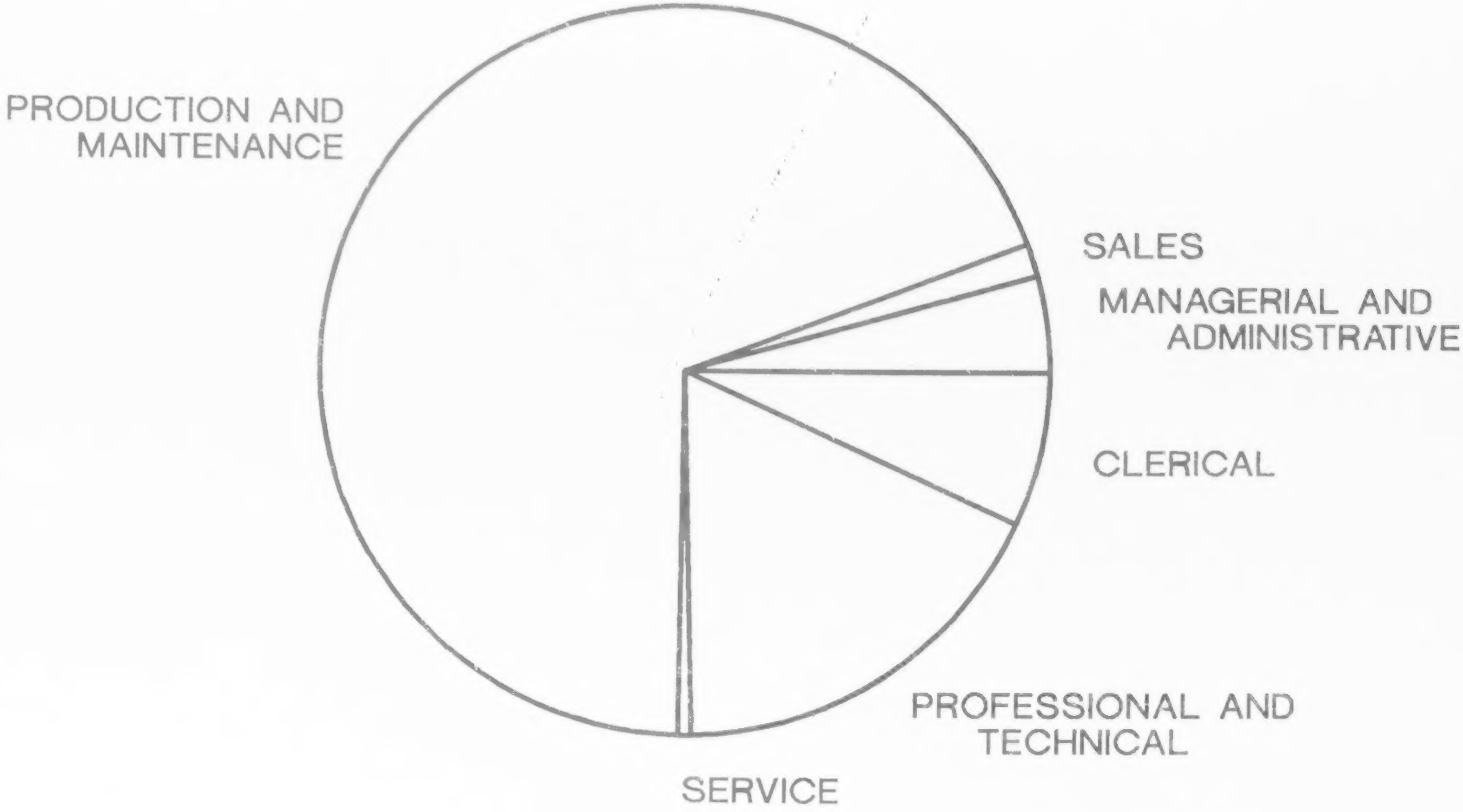
Figure 30

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN ELECTRICAL AND ELECTRONIC MACHINERY, EQUIPMENT, AND SUPPLIES



ELECTRICAL AND ELECTRONIC MACHINERY, EQUIPMENT, AND SUPPLIES
SIC 36
JUNE 1986

Occupation	Estimated Employ-ment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	10,270	100.00	na	na
Managerial and Administrative Occupations	440	4.28	na	na
Financial Managers	30	0.29	15	38
Personnel, Training, and Labor Relations Managers	30	0.29	12	33
Purchasing Managers	40	0.39	37	28
Marketing, Advertising, and Public Relations Managers	30	0.29	12	23
Administrative Services Managers	20	0.19	35	13
Engineering, Mathematical and Natural Sciences Managers	50	0.49	22	33
Industrial Production Managers	100	0.97	21	58
General Managers and Top Executives	80	0.78	6	78
All Other Managers and Administrators	60	0.58	na	na
Professional, Paraprofessional, and Technical Occupations	1,830	17.82	na	na
Accountants and Auditors	40	0.39	19	38
All Other Financial Specialists	10	0.10	na	na
Purchasing Agents, except Wholesale, Retail, and Farm Products	100	0.97	41	48
Personnel, Training, and Labor Relations Specialists	30	0.29	14	28
Cost Estimators	10	0.10	19	15
All Other Management Support Workers	50	0.49	na	na
Metallurgists and Metallurgical, Ceramic, and Materials Engineers	20	0.19	16	10
Electrical and Electronic Engineers	390	3.80	9	35
Industrial Engineers, except Safety	60	0.58	34	25
Safety Engineers, except Mining	10	0.10	29	8
Mechanical Engineers	110	1.07	5	45
All Other Engineers	60	0.58	na	na
Electrical and Electronic Engineering Technicians and Technologists	530	5.16	15	33
Industrial Engineering Technicians and Technologists	20	0.19	25	8
Mechanical Engineering Technicians and Technologists	40	0.39	22	15
Drafters	70	0.68	4	30
All Other Engineering and Related Technicians and Technologists	30	0.29	na	na
Chemical Technicians and Technologists, except Health	40	0.39	21	8
Systems Analysts, Electronic Data Processing	60	0.58	33	10
Computer Programmers	40	0.39	8	20
Computer Programmer Aides	10	0.10	15	8
Health Practitioners, Technologists, Technicians, and Related Health Occupations	10	0.10	14	15
Technical Writers	10	0.10	23	10
Designers, except Interior Designers	60	0.58	40	8
All Other Professional, Paraprofessional, and Technical Workers	20	0.19	na	na
Sales and Related Occupations	150	1.46	na	na
First Line Supervisors and Manager/Supervisors, Sales and Related Occupations	20	0.19	27	15
Sales Engineers	20	0.19	32	10
Sales Representatives, Scientific and Related Products and Services, except Retail	80	0.78	7	13
All Other Sales and Related Workers	30	0.29	na	na
Clerical and Administrative Support Occupations	700	6.82	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	10	0.10	26	10
Adjustment Clerks	20	0.19	12	10
Secretaries	80	0.78	12	48
Receptionists and Information Clerks	10	0.10	16	13
Typists	10	0.10	24	10
Personnel Clerks, except Payroll and Timekeeping	20	0.19	8	23
Order Clerks, Materials, Merchandise, and Service	20	0.19	17	18
Procurement Clerks	10	0.10	23	18
Statistical Clerks	10	0.10	24	8
Bookkeeping, Accounting, and Auditing Clerks	50	0.49	18	43
Payroll and Timekeeping Clerks	20	0.19	12	23
Billing, Cost, and Rate Clerks	10	0.10	29	10
General Office Clerks	40	0.39	17	25

SIC 36 (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
Computer Operators, except Peripheral Equipment	40	0.39	20	18
All Other Office Machine Operators	10	0.10	na	na
Data Entry Keyers, except Composing	20	0.19	12	23
Switchboard Operators	20	0.19	11	20
Production, Planning, and Expediting Clerks	110	1.07	12	48
Stock Clerks, Stockroom, Warehouse, or Storage Yard	70	0.68	7	33
Traffic, Shipping, and Receiving Clerks	50	0.49	4	45
All Other Clerical and Administrative Support Workers	70	0.68	na	na
Service Occupations	60	0.58	na	na
Protective Service Workers	10	0.10	na	na
Janitors and Cleaners, except Maids and Housekeeping Cleaners	50	0.49	8	43
Production, Construction, Operating, Maintenance, and Material Handling Occupations	7,090	69.04	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	30	0.29	24	20
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	300	2.92	3	75
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance and Related	20	0.19	na	na
Precision Inspectors, Testers, and Graders	380	3.70	28	35
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	430	4.19	30	35
Machinery Maintenance Mechanics	220	2.14	9	30
Millwrights	10	0.10	20	8
Maintenance Repairers, General Utility	50	0.49	12	38
All Other Mechanics, Installers, and Repairers	90	0.88	na	na
Electricians	30	0.29	14	23
All Other Construction Trades Workers	20	0.19	na	na
Tool and Die Makers	80	0.78	22	35
Machinists	190	1.85	6	43
Tool Grinders, Filers, Sharpeners, and Other Precision Grinders	30	0.29	30	10
All Other Precision Metal Workers	50	0.49	na	na
Lathe and Turning Machine Tool Setters and Setup Operators, Metal and Plastic	50	0.49	37	13
Milling and Planing Machine Setters and Setup Operators, Metal and Plastic	20	0.19	47	8
Machine Tool Cutting Operators and Tenders, Metal and Plastic	40	0.39	33	8
Machine Forming Operators and Tenders, Metal and Plastic	50	0.49	20	8
Numerical Control Machine Tool Operators and Tenders, Metal and Plastic	40	0.39	34	8
Combination Machine Tool Setters and Setup Operators, Metal and Plastic	60	0.58	10	10
Welding Machine Setters and Setup Operators	110	1.07	18	8
All Other Metal and Plastic (Cut, Form, Fabricate or Process) Machine Operators or Tenders	280	2.73	na	na
Screen Printing Machine Setters and Setup Operators	50	0.49	44	8
Electronic Semiconductor Processors	450	4.38	1	8
All Other Machine Setters and Setup Operators	70	0.68	na	na
All Other Machine Operators and Tenders	380	3.70	na	na
Machine Builders and Other Precision Machine Assemblers	10	0.10	35	8
Electrical and Electronic Equipment Assemblers, Precision	530	5.16	24	23
All Other Precision Assemblers	20	0.19	na	na
Electrical and Electronic Assemblers	1,970	19.18	21	43
Coil Winders, Tapers, and Finishers	30	0.29	1	8
Welders and Cutters	100	0.97	41	10
Solderers and Brazers	40	0.39	38	10
Grinding and Polishing Workers, Hand	10	0.10	na	8
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	590	5.74	17	23
All Other Hand Workers	50	0.49	na	na
Plant and System Operators	10	0.10	na	na
Truck Drivers, Light, including Delivery and Route Workers	10	0.10	30	13
All Other Motor Vehicle Operators	20	0.19	na	na
Material Moving Equipment Operators	40	0.39	na	na
Freight, Stock, and Material Movers, Hand	60	0.58	14	20
Hand Packers and Packagers	40	0.39	24	15
All Other Helpers, Laborers, and Material Movers, Hand	30	0.29	na	na

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TRANSPORTATION EQUIPMENT
SIC 37

This major industry group includes establishments engaged in manufacturing equipment for transportation of passengers and cargo by land, air, and water.

In the past six-year period, this industry has added 1,600 employees, increasing from 8,300 workers in 1980 to 9,900 workers in 1986. This denotes a 19 percent gain in employment.

In 1986, total wages paid to employees of the transportation equipment industry totaled $261.2 million. This equates to an average wage of $26,324 per worker.

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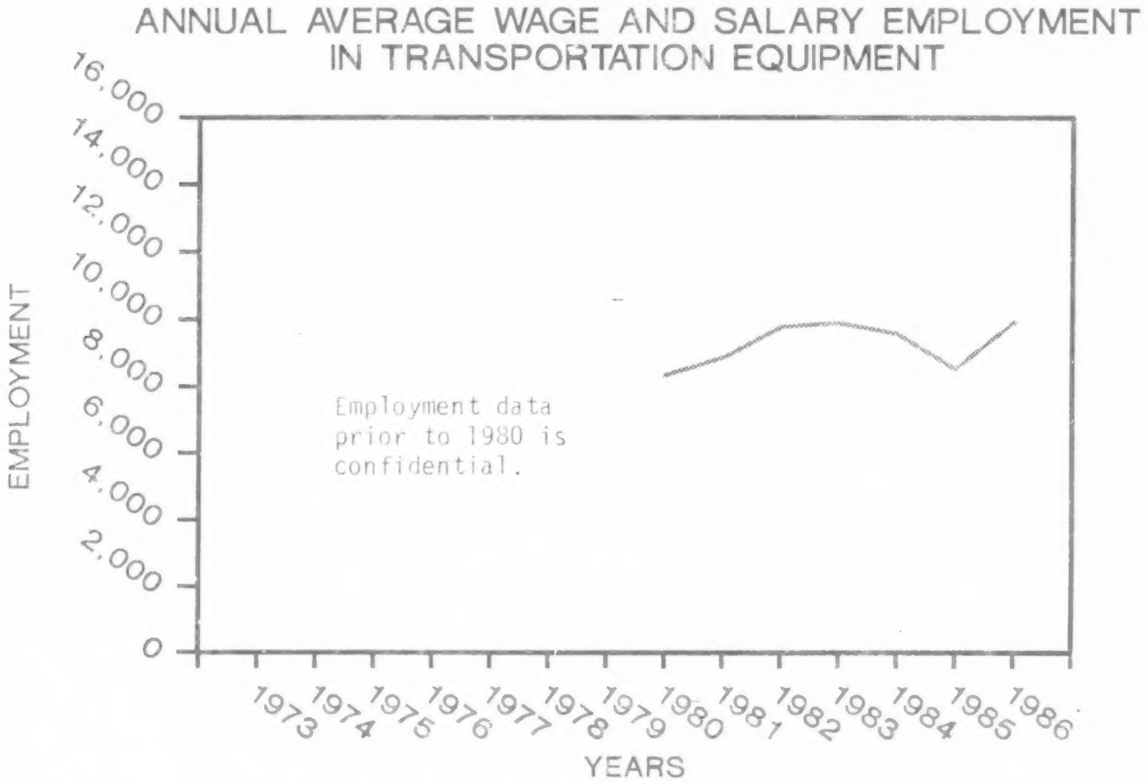
Figure 31



Transportation Equipment, Except Aircraft and Parts
SIC 37, except 372
June 1986

Ten Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Electricians	650	7.59
Welders and Cutters	580	6.78
Plumbers, Pipefitters, and Steamfitters	470	5.49
Assemblers and Fabricators, Except Machine, Electrical, Electronic, and Precision	390	4.56
Shipfitters	380	4.44
Carpenters	330	3.86
Sheet Metal Workers	290	3.39
Drafters	270	3.15
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	240	2.80
Maintenance Repairers, General Utility	210	2.45
Total	3,810	44.51

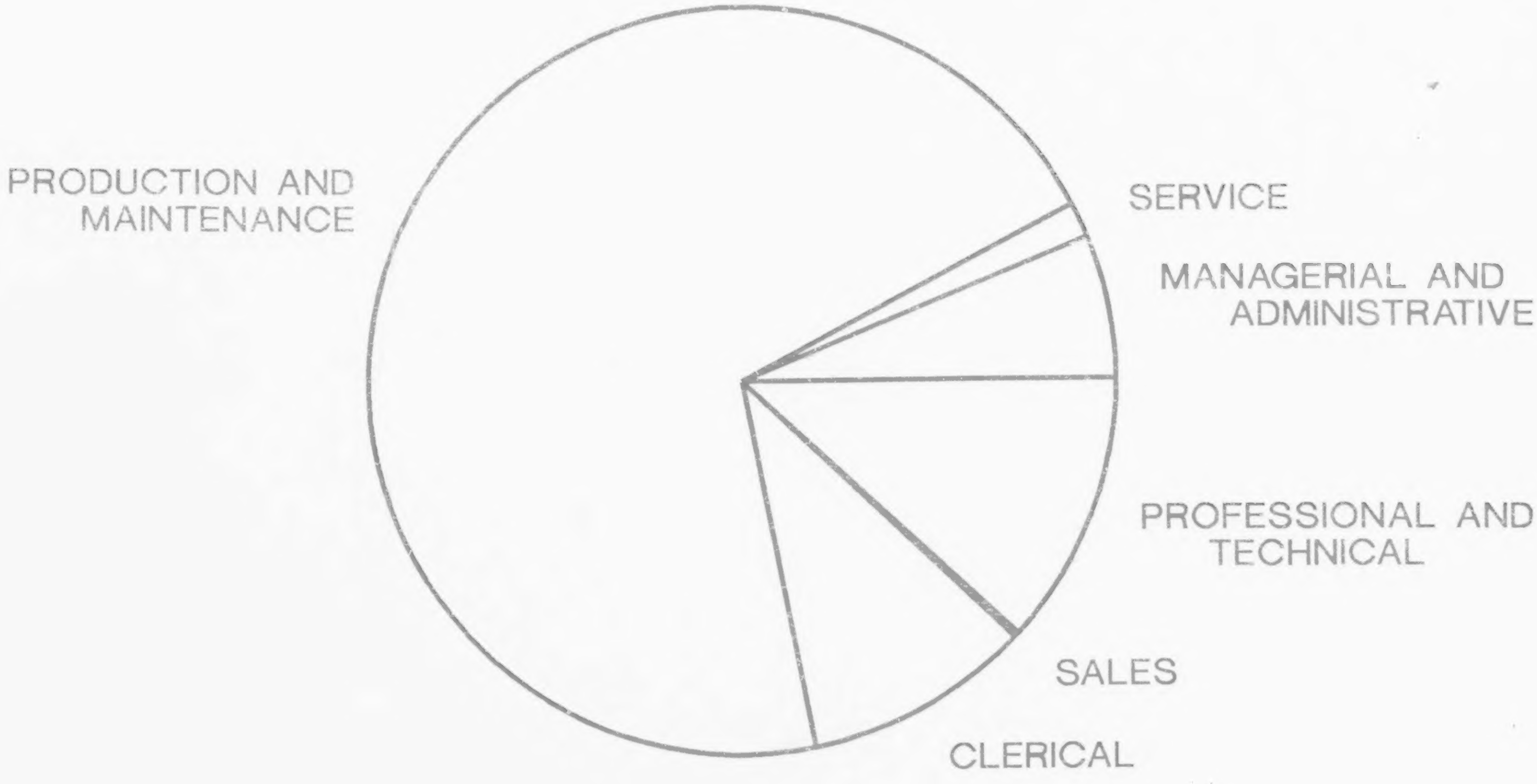
Eleven Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives	130	75
Secretaries	120	64
Carpenters	330	61
Bookkeeping, Accounting, and Auditing Clerks	40	57
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	240	43
Industrial Production Managers	20	39
Purchasing Agents, except Wholesale, Retail, and Farm Products	200	39
Assemblers and Fabricators, Except Machine, Electrical, Electronic, and Precision	390	36
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	10	32
General Office Clerks	60	32
Janitors and Cleaners, except Maids and Housekeeping Cleaners	60	32

135d

Figure 32

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN TRANSPORTATION EQUIPMENT



TRANSPORTATION EQUIPMENT EXCEPT AIRCRAFT AND PARTS
SIC 37 except 372
JUNE 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	8,560	100.00	na	na
Managerial and Administrative Occupations	530	6.19	na	na
Financial Managers	20	0.23	8	21
Personnel, Training, and Labor Relations Managers	10	0.12	10	11
Purchasing Managers	20	0.23	5	18
Marketing, Advertising, and Public Relations Managers	10	0.12	8	21
Engineering, Mathematical and Natural Sciences Managers	30	0.35	1	11
Industrial Production Managers	20	0.23	17	39
General Managers and Top Executives	130	1.52	7	75
All Other Managers and Administrators	290	3.39	na	na
Professional, Paraprofessional, and Technical Occupations	1,020	11.92	na	na
Financial Specialists	30	0.35	na	na
Purchasing Agents, except Wholesale, Retail, and Farm Products	200	2.34	2	39
Personnel, Training, and Labor Relations Specialists	20	0.23	na	11
Cost Estimators	40	0.47	3	11
All Other Management Support Workers	110	1.29	na	na
Mechanical Engineers	30	0.35	na	21
Marine Engineers	10	0.12	21	14
All Other Engineers	190	2.22	na	na
Drafters	270	3.15	na	14
All Other Engineering and Related Technicians and Technologists	10	0.12	na	na
Physical and Life Science Technicians and Technologists	10	0.12	na	na
Health Practitioners, Technologists, Technicians, and Related Health Occupations	10	0.12	na	na
Artists and Related Workers	10	0.12	7	11
All Other Professional, Paraprofessional, and Technical Workers	80	0.93	na	na
Sales and Related Occupations	20	0.23	na	na
Sales Representatives, except Scientific and Related Products and Services, and Retail	10	0.12	14	18
All Other Sales and Related Workers	10	0.12	na	na
Clerical and Administrative Support Occupations	840	9.81	na	na
First Line Supervisors and Manager/Supervisors, Clerical and Administrative Support Occupations	10	0.12	32	32
Secretaries	120	1.40	7	64
Typists	10	0.12	8	11
Personnel Clerks, except Payroll and Timekeeping	10	0.12	10	11
Bookkeeping, Accounting, and Auditing Clerks	40	0.47	12	57
Payroll and Timekeeping Clerks	20	0.23	4	14
Billing, Cost, and Rate Clerks	10	0.12	8	14
General Office Clerks	60	0.70	21	32
All Other Office Machine Operators	30	0.35	na	na
Switchboard Operators	10	0.12	4	11
Stock Clerks, Stockroom, Warehouse, or Storage Yard	150	1.75	1	29
Traffic, Shipping, and Receiving Clerks	120	1.40	na	29
All Other Material Recording, Scheduling, and Distributing Workers	10	0.12	na	na
All Other Clerical and Administrative Support Workers	240	2.80	na	na
Service Occupations	130	1.52	na	na
Guards and Watch Guards	70	0.82	3	14
Janitors and Cleaners, except Maids and Housekeeping Cleaners	60	0.70	3	32
Production, Construction, Operating, Maintenance, and Material Handling Occupations	6,020	70.33	na	na
First Line Supervisors and Manager/Supervisors, Mechanics, Installers, and Repairers	30	0.35	14	29
First Line Supervisors and Manager/Supervisors, Construction Trades and Extractive Workers	200	2.34	4	18

SIC 37 (continued)

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	240	2.80	3	43
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance, and Related	40	0.47	na	na
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	30	0.35	na	14
All Other Inspectors, Testers and Related Occupations	10	0.12	na	na
Maintenance Repairers, General Utility	210	2.45	1	29
Small Engine Specialists	10	0.12	65	11
Electrical and Electronic Equipment Mechanics, Installers and Repairers	10	0.12	na	na
Riggers	130	1.52	7	21
All Other Mechanics, Installers, and Repairers	90	1.05	na	na
Carpenters	330	3.86	14	61
Electricians	650	7.59	1	18
Painters and Paperhangers, Construction and Maintenance	150	1.75	6	29
Plumbers, Pipefitters, and Steamfitters	470	5.49	na	11
Construction Trades Workers	100	1.17	na	na
All Other Construction and Extractive Workers, except Helpers	50	0.58	na	na
Machinists	90	1.05	8	29
Shipfitters	380	4.44	2	11
Sheet Metal Workers	290	3.39	1	18
All Other Precision Metal Workers	10	0.12	na	na
Precision Woodworkers	40	0.47	na	na
Machine Tool Cutting Operators and Tenders, Metal and Plastic	120	1.40	1	11
Welding Machine Setters and Setup Operators	10	0.12	29	11
All Other Metal and Plastic (Cut, Form, Fabricate or Process) Machine Setters and Setup Operators	70	0.82	na	na
All Other Metal and Plastic (Cut, Form, Fabricate or Process) Machine Operators and Tenders	140	1.64	na	na
Painters, Transportation Equipment	130	1.52	4	14
Coating, Painting, and Spraying Machine Setters and Setup Operators	120	1.40	7	21
Welders and Cutters	580	6.78	2	25
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	390	4.56	4	36
All Other Hand Workers	280	3.27	na	na
Truck Drivers, Heavy or Tractor Trailer	10	0.12	11	14
All Other Motor Vehicle Operators	10	0.12	na	na
Industrial Truck and Tractor Operators	10	0.12	60	14
All other Material Moving Equipment Operators	100	1.17	na	na
Construction Trades and Extractive Worker Helpers	100	1.17	9	11
All Other Helpers, Laborers, and Material Movers, Hand	390	4.56	na	na

T12d

MEASURING, ANALYZING, AND CONTROLLING INSTRUMENTS; PHOTOGRAPHS, MEDICAL, AND OPTICAL GOODS; WATCHES AND CLOCKS
SIC 38

This major industry group of instruments and related products includes establishments engaged in manufacturing instruments (including professional and scientific) for measuring, testing, analyzing, and controlling, and their associated sensors and accessories; optical instruments and lenses; surveying and drafting instruments; surgical, medical and dental instruments, equipment, and supplies; ophthalmic goods; photographic equipment and supplies; and watches and clocks.

Employment in this industry increased by 88 percent between 1973 and 1979, but then declined by 42 percent between 1979 and 1985. Employment was again on an upward swing between 1985 and 1986 adding nearly 250 workers to end this period with close to 800 employees.

In 1986, total wages paid to employees of the instruments and related products industry totaled $12.3 million. This equates to an average annual wage of $15,565 per worker.

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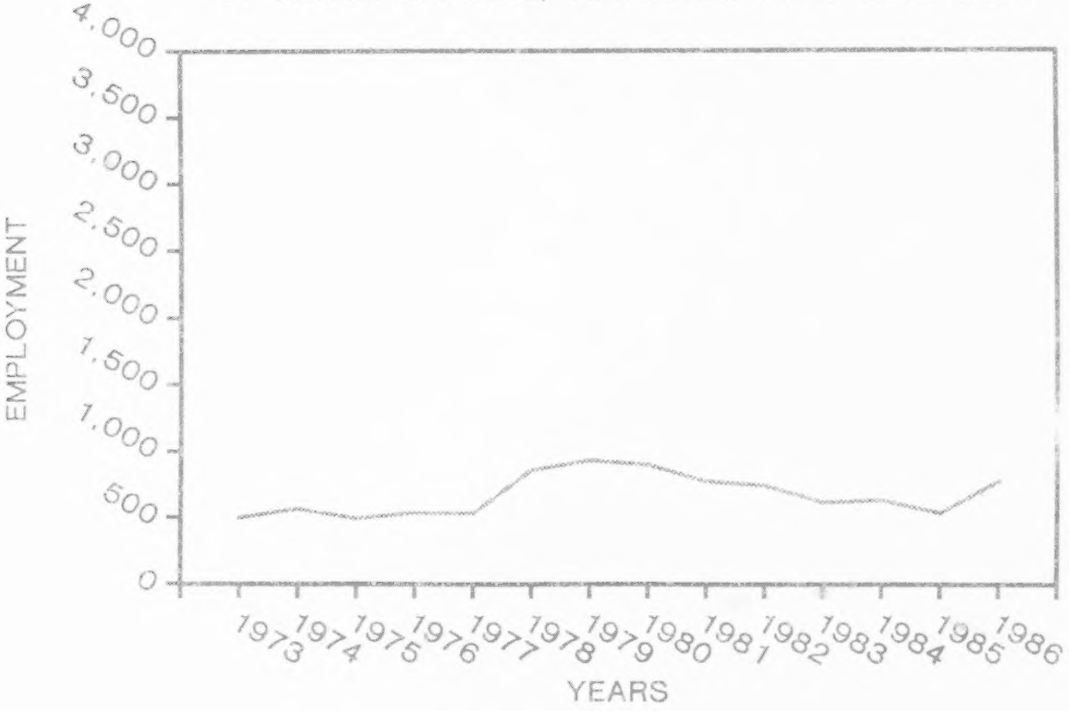
Figure 33

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN MEASURING, ANALYZING, AND CONTROLLING INSTRUMENTS; PHOTOGRAPHS, MEDICAL, AND OPTICAL GOODS; WATCHES AND CLOCKS



Measuring, Analyzing, and Controlling Instruments; Photographs, Medical, and Optical Goods; Watches and Clocks
SIC 38
April 1986

Four Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Assemblers and Fabricators, Except Machine, Electrical, Electronic, and Precision.........	80	10.53
Electrical and Electronic Equipment Assemblers, Precision....................................	60	7.89
Industrial Production Managers..................	20	2.63
First Line Supervisors and Manager/Supervisors, Production and Operating Workers.............	20	2.63
Total......................	180	23.68

Seven Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
General Managers and Top Executives............	10	77
First Line Supervisors and Manager/Supervisors, Production and Operating Workers.............	20	69
Industrial Production Managers..................	20	62
Bookkeeping, Accounting, and Auditing Clerks....	10	62
Traffic, Shipping, and Receiving Clerks.........	10	54
Purchasing Agents, Except Wholesale, Retail, and Farm Products...........................	10	54
Secretaries..................................	10	54

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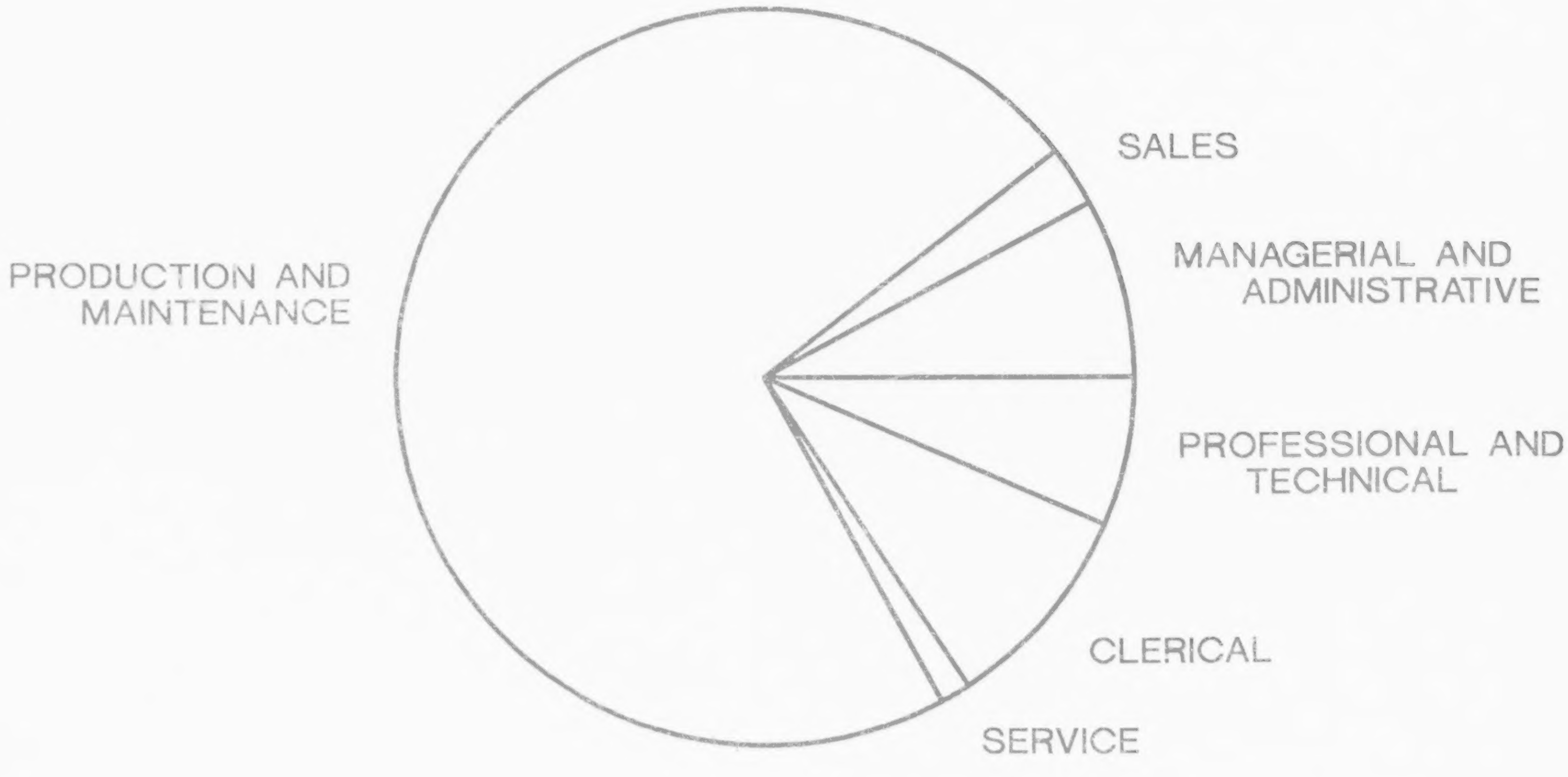
Figure 34

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT IN MEASURING, ANALYZING, AND CONTROLLING INSTRUMENTS; PHOTOGRAPHS, MEDICAL, AND OPTICAL GOODS; WATCHES AND CLOCKS



MEASURING, ANALYZING, AND CONTROLLING INSTRUMENTS: PHOTOGRAPHS, MEDICAL, AND OPTICAL GOODS; WATCHES AND CLOCKS
SIC 38
APRIL 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	760	100.00	na	na
Managerial and Administrative Occupations	60	7.89	na	na
Financial Managers	10	1.32	na	38
Marketing, Advertising, and Public Relations Managers	10	1.32	6	38
Industrial Production Managers	20	2.63	4	62
General Managers and Top Executives	10	1.32	7	77
All Other Managers and Administrators	10	1.32	na	na
Professional, Paraprofessional and Technical Occupations	50	6.58	na	na
Financial Specialists	10	1.32	na	na
Purchasing Agents, except Wholesale, Retail, and Farm Products	10	1.32	5	54
Engineers	10	1.32	na	na
Electrical and Electronic Engineering Technicians and Technologists	10	1.32	4	23
All Other Engineering and Related Technicians and Technologists	10	1.32	na	na
Sales and Related Occupations	20	2.63	na	na
Clerical and Administrative Support Occupations	70	9.21	na	na
Secretaries	10	1.32	8	54
Bookkeeping, Accounting, and Auditing Clerks	10	1.32	4	62
General Office Clerks	10	1.32	9	31
Traffic, Shipping, and Receiving Clerks	10	1.32	8	54
All Other Material Recording, Scheduling, and Distributing Workers	10	1.32	na	na
All Other Clerical and Administrative Support Workers	20	2.63	na	na
Service Occupations	10	1.32	na	na
Janitors and Cleaners, except Maids and Housekeeping Cleaners	10	1.32	9	46
Production, Construction, Operating, Maintenance, and Material Handling Occupations	550	72.37	na	na
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	20	2.63	3	69
All Other First Line Supervisors and Manager/Supervisors, Production, Construction, Maintenance and Related	20	2.63	na	na
Precision Inspectors, Testers, and Graders	10	1.32	na	23
Production Inspectors, Testers, Graders, Sorters, Samplers, and Weighers	10	1.32	na	31
Mechanics, Installers, and Repairers	10	1.32	na	na
Precision Metal Workers	80	10.53	na	na
Metal and Plastic (Cut, Form, Fabricate or Process) Machine Setters and Setup Operators	20	2.63	na	na
Metal and Plastic (Cut, Form, Fabricate or Process) Machine Oeprators and Tenders	10	1.32	na	na
Machine Setters and Setup Operators	40	5.26	na	na
Machine Operators and Tenders	150	19.74	na	na
Electrical and Electronic Equipment Assemblers, Precision	60	7.89	2	23
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	80	10.53	3	38
All Other Hand Workers	10	1.32	na	na
Freight, Stock, and Material Movers, Hand	10	1.32	na	na
Hand Packers and Packagers	10	1.32	8	23
All Other Helpers, Laborers, and Material Movers, Hand	10	1.32	na	na

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MISCELLANEOUS MANUFACTURING INDUSTRIES
SIC 39

This major industry group includes establishments primarily engaged in manufacturing products not classified in any other manufacturing major group. Industries in Maine in this group fall into the following categories: jewelry, silverware and plated ware; toys and amusement, sporting, and athletic goods; pens, pencils, and other office and artists' materials; costume novelties; and brooms and brushes, signs and advertising displays, hard surfaced floor coverings, and caskets.

Employment in this industry has been quite erratic, with 1,000 workers in 1973, up to 1,200 in 1976, way down to 700 in 1982, then ending this 13-year period where it started, at 1,000 workers.

In 1986, total wages paid to employees of the miscellaneous manufacturing industries totaled $12.4 million. This equates to an average annual wage of $12,260 per worker.

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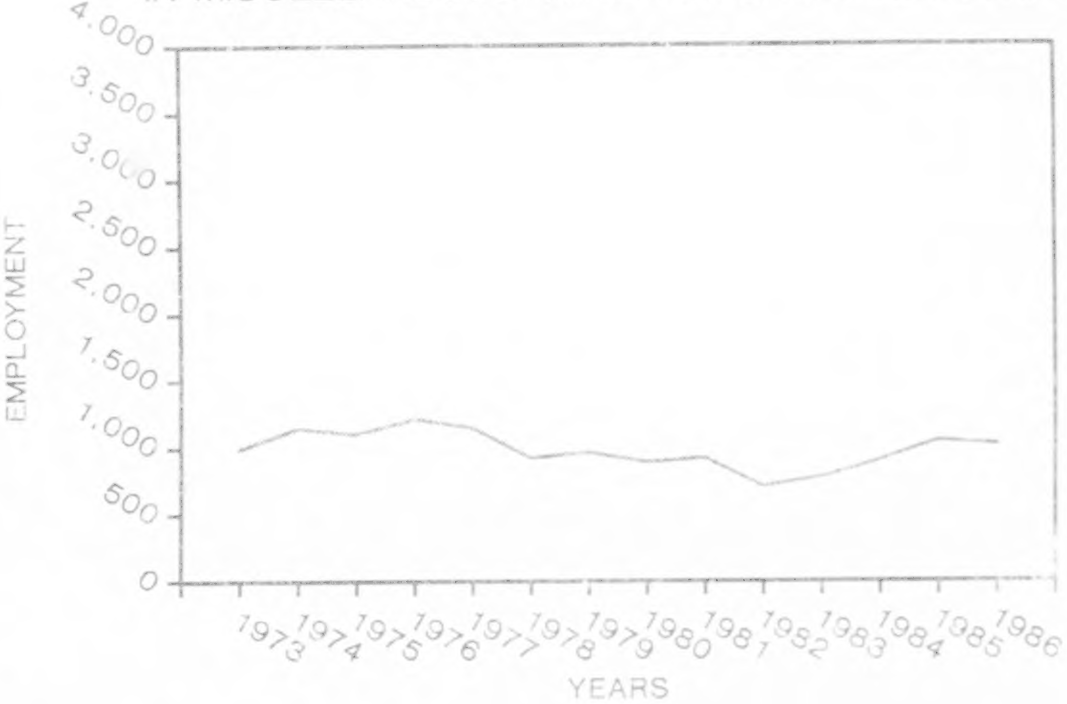
Figure 35

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT
IN MISCELLANEOUS MANUFACTURING INDUSTRIES



Miscellaneous Manufacturing Industries
SIC 39
May 1986

Seven Occupations with the Greatest Number of Workers

Occupation	Employment	Percent of Total Employment
Assemblers and Fabricators, Except Machine, Electrical, Electronic, and Precision..........	230	23.47
First Line Supervisors and Manager/Supervisors, Production and Operating Workers..............	50	5.10
Freight, Stock, and Material Movers, Hand.......	40	4.08
General Managers and Top Executives.............	30	3.06
Bookkeeping, Accounting, and Auditing Clerks....	30	3.06
Maintenance Repairers, General Utility..........	30	3.06
Painting, Coating, and Decorating Workers, Hand.	30	3.06
Total......................	440	44.90

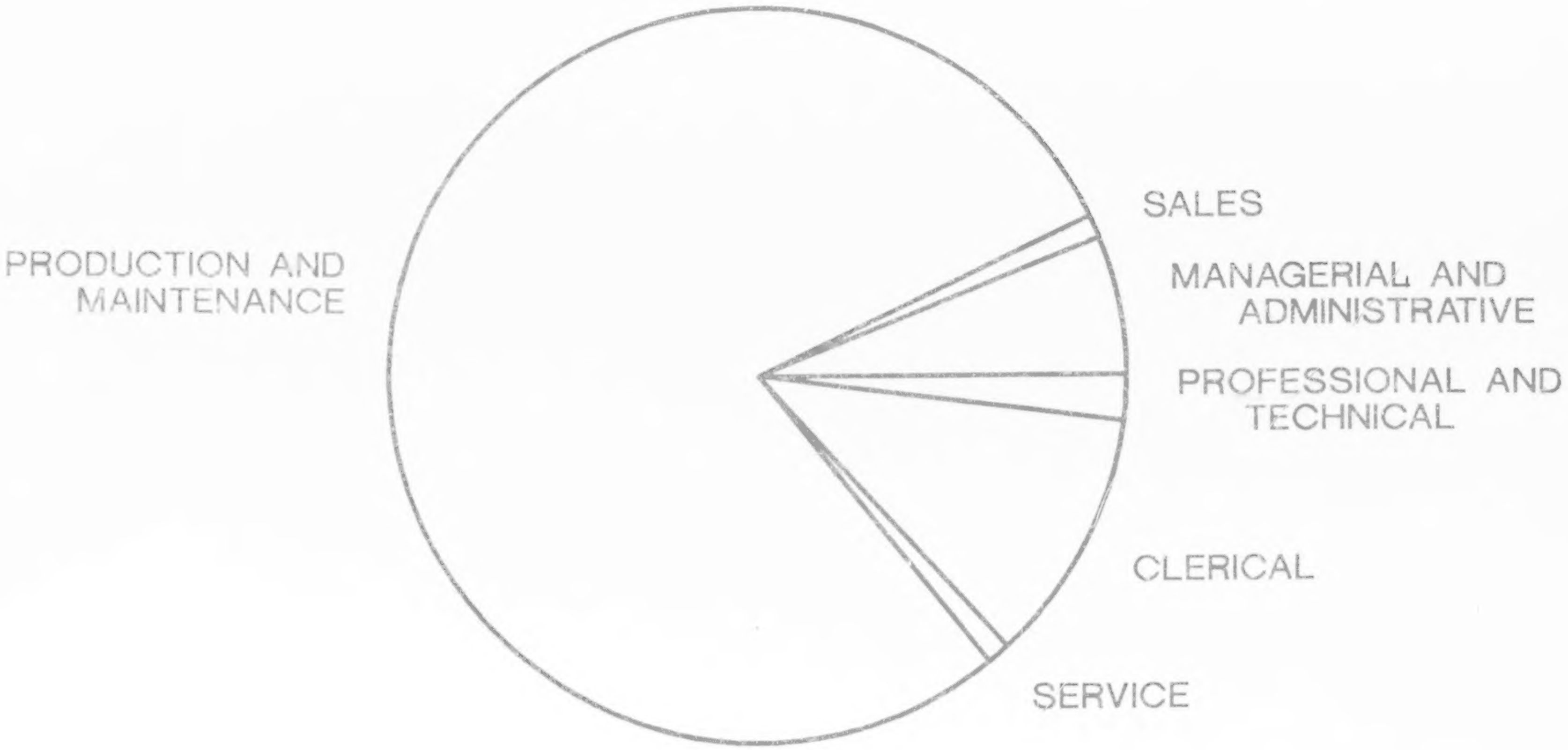
Nine Occupations Most Frequently Reported by Employers

Occupation	Employment	Percent of Units Reporting the Occupation
Industrial Production Managers....................	20	57
General Managers and Top Executives.............	30	57
Bookkeeping, Accounting, and Auditing Clerks....	30	57
First Line Supervisors and Manager/Supervisors, Production and Operating Workers..............	50	48
Assembers and Fabricators, Except Machine, Electrical, Electronic, and Precision..........	230	48
General Office Clerks..........................	20	39
Designers, Except Interior Designers............	20	30
Traffic, Shipping, and Receiving Clerks.........	20	30
Maintenance Repairers, General Utility..........	30	30

137d

Figure 36

ANNUAL AVERAGE WAGE AND SALARY EMPLOYMENT
IN MISCELLANEOUS MANUFACTURING INDUSTRIES



MISCELLANEOUS MANUFACTURING INDUSTRIES
SIC 39
MAY 1986

Occupation	Estimated Employment	% of Total Empl.	Relative Error (%)	% of Units Reporting the Occupation
TOTAL ALL OCCUPATIONS	980	100.00	na	na
Managerial and Administrative Occupations	60	6.12	na	na
Industrial Production Managers	20	2.04	10	57
General Managers and Top Executives	30	3.06	6	57
All Other Managers and Administrators	10	1.02	na	na
Professional, Paraprofessional, and Technical Occupations	20	2.04	na	na
Designers, except Interior Designers	20	2.04	14	30
Sales and Related Occupations	10	1.02	na	na
Sales Representatives, except Scientific and Related Products and Services, and Retail	10	1.02	14	22
Clerical and Administrative Support Occupations	110	11.22	na	na
Secretaries	10	1.02	15	22
Bookkeeping, Accounting, and Auditing Clerks	30	3.06	7	57
General Office Clerks	20	2.04	16	39
Production, Planning, and Expediting Clerks	10	1.02	21	13
Traffic, Shipping, and Receiving Clerks	20	2.04	8	30
All Other Clerical and Administrative Support Occupations	20	2.04	na	na
Service Occupations	10	1.02	na	na
Janitors and Cleaners, except Maids and Housekeeping Cleaners	10	1.02	14	13
Production, Construction, Operating, Maintenance, and Material Handling Occupations	770	78.57	na	na
First Line Supervisors and Manager/Supervisors, Production and Operating Workers	50	5.10	15	48
Inspectors, Testers, and Related Occupations	10	1.02	na	na
Maintenace Repairers, General Utility	30	3.06	4	30
All Other Mechanics, Installers, and Repairers	20	2.04	na	na
Construction and Extractive Workers, except Helpers	10	1.02	na	na
Jewelers and Silversmiths	10	1.02	19	13
All other Precision Metal Workers	10	1.02	na	na
Machine Tool Cutting Operators and Tenders, Metal and Plastic	10	1.02	35	13
Plastic Molding and Casting Machine Operators and Tenders	20	2.04	36	13
Metal and Plastic (Cut, Form, Fabricate or Process) Machine Setters and Setup Operators	20	2.04	na	na
All Other Metal and Plastic (Cut, Form, Fabricate or Process) Machine Operators and Tenders	20	2.04	na	na
Screen Printing Machine Setters and Setup Operators	10	1.02	25	13
All Other Machine Setters and Setup Operators	10	1.02	na	na
All Other Machine Operators and Tenders	130	13.27	na	na
Painting, Coating, and Decorating Workers, Hand	30	3.06	9	26
Assemblers and Fabricators, except Machine, Electrical, Electronic, and Precision	230	23.47	8	48
All Other Hand Workers	20	2.04	na	na
Motor Vehicle Operators	10	1.02	na	na
Material Moving Equipment Operators	10	1.02	na	na
Freight, Stock, and Material Movers, Hand	40	4.08	9	17
Hand Packers and Packagers	20	2.04	4	22
All Other Helpers, Laborers, and Material Movers, Hand	50	5.10	na	na

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NOTES ABOUT THE TABLES

Estimated Employment

If only one or two establishments reported a particular occupation, the employment for that occupation is not shown separately, but added to the appropriate "All Other" residual category. The "Total All Occupations" estimate for each industry was based on the second quarter 1986 report of Employment, Wages, and Contributions covered by the Maine Employment Security Law.

Percent of Total Employment

The detail in the column entitled "% of Total Empl." may not add to totals due to rounding.

Relative Error

The relative error was computed only for specific occupations and not for residual categories nor for occupational groupings. If the relative error of an occupation exceeded 50 percent, and the response rate for the industry's total employment was 70 percent or better, the employment for that occupation was added to the residual category that was relevant to it. If the response rate of the industry was less than 70 percent, and the relative error of the occupation in that industry exceeded 35 percent, the employment for that occupation was not published separately, but was added to the residual category that was relevant to it. The relative error relates to the actual estimate before rounding. For an example of how the relative error is applied, see Accuracy of Occupational Employment Data in the METHODOLOGY.

Percent of Establishments Reporting the Occupation

The percent of establishments reporting each occupation could not be readily calculated for groups of occupations, but only for specific occupations.

Abbreviations

na - not applicable
SIC - Standard Industrial Classification, as defined in the 1972 edition of the Standard Industrial Classification Manual, prepared by the Executive Office of the President, Office of Management and Budget, Statistical Policy Division.
Empl. - Employment

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METHODOLOGY

The Sample

The second quarter 1985 report of Employment, Wages, and Contributions covered by the Maine Employment Security Law was used as the sampling frame for the Occupational Employment Statistics (OES) Program's survey of manufacturing industries.

The universe for this survey consisted of 1,404 establishments each employing four or more employees, and a total of 106,409 persons (including employment in establishments employing less than four workers). Of these, the survey included 1,139 units, or 81.1 percent of the universe. These sample units employed 102,928 workers, accounting for 96.7 percent of the total universe employment.

The Survey

The survey consisted of an initial mailing and two follow-up mailings to nonrespondents. In addition, many phone calls and personal visits were made to those employers whose responses were critical for valid estimates. Usable responses were received from 918 units, or 80.6 percent of the 1,139 sampled units. These usable responses represented 80,205 persons, or 77.9 percent of the total employment in the surveyed units.

The Screening, Editing, and Estimating Procedure

Each completed questionnaire returned was edited and screened both manually and mechanically for consistency and accuracy. The resulting "clean data file" served as the basis for calculating estimates. The "clean" employer questionnaires were separated by industry into seven size groups, the size being determined by the number of persons employed by each. The reported total employment and occupational employment on each form was then multiplied by the weight which had been assigned to it during sample selection. This data was then tied into the universe for the report month of April, May, or June 1986 depending on the industry. These universe, or benchmark, figures came from the second quarter 1986 ES-202 report of Employment, Wages, and Contributions covered by the Maine Employment Security Law. The total survey data by industry, by size class, was divided into the universe data for corresponding industry and size classes. This produced benchmark factors which were applied to the occupational data, thus accounting for any nonresponding units and any new units which emerged after the sample had been drawn. The resulting occupational estimates were summed across size classes to industry totals and rounded to the nearest ten. The percent of occupational distribution for each industry was then calculated.

Accuracy of Occupational Employment Data

There are two types of errors which affect the accuracy of the estimates published here--sampling and nonsampling errors. Sampling error is a specific arithmetic measure of the precision of an estimate. It is the difference between the estimate computed from the sample data and the result that would be obtained if the same methods were used to collect identical information from the entire population or universe. The relative error entries listed in this report are the sampling errors of each occupation expressed as a percent of that occupational estimate. In other words, relative error means that the chances are two out of three (a 68 percent confidence level) that the results of a comparable full-scale data collection (the universe) using the same survey approach would not differ by more than the percent error shown. The chances are 19 out of 20 (a 95 percent confidence level) that the results would not differ by more than twice the percent error shown. For example, it is estimated in this report that there are 660 logging tractor operators in the lumber and wood products industry, with a 7 percent relative error. Thus, at a 68 percent confidence level, it is assured that the results of a full-scale count of logging tractor operators in this industry would not differ from this estimate by more than 46 workers (660 x .07). At a 95 percent confidence level, the universe count would not differ from the estimate by more than 14 percent of 660, or 92 workers.

Nonsampling errors result from external factors in a survey rather than from the fact that a sampling technique was used. Examples of these errors are: response errors, processing errors, computational errors, etc. The possibility of these errors was recognized from the start of the survey and every effort was made to avoid them.

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